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Normative Data on a Self-Administered Projective Question for Children

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Summary: An attempt was made to define "group reference points or base lines" in responses of 3,863 children, ages 8 to 17, to brief, self-administered projective questions about which animals they would and would not choose to be. It was felt that the efficacy of this device as a self-administered technique was demonstrated. Statistically significant age and sex differences were found as well as evidence of clustering of choices which was interpreted as a kind of conformity. Directions for future research were noted.

Projective questions are not new to psychologists. Many examiners seek depth material by including their own favorite, open-ended, brief question in an interview. David (1955)[1] and David and Leach (1957) reported that a wide variety of techniques had been used for this purpose: asking subjects to interpret proverbs, tell their favorite joke, paint a verbal self-portrait, etc. They have asked, "What would you *most* like to be if you were not a human being?" and "What would you *least* like to be if you were not a human being?" Pigem's (1949) question was, "What would you like to be if you had to return to this world and you could not be a person?". van Krevelen (1956) adapted Pigem's test for children and asked, "Imagine that a magician comes to you and wants to turn you into something and you are allowed to say what you would like to be, what would you say?". For a number of years, the author and others have asked, "Make believe that Congress passed a law that everyone had to be an animal for 24 hours. What animal would you choose to be?" and "What animal would you least want to be?". Cole[2] has asked similar questions of a college population. The underlying hypothesis for such questions is that the animals chosen reflect a subject's current life role.

Although these brief, individually administered projective methods (usually together with a verbal inquiry) have been used with children to obtain depth material, they are primarily useful as rapid, clinical, screening tools. However, as David & Rabinowitz (1960) pointed out, "While it has been charged by Feifel (1955) that such techniques reflect 'cultural and conventional stereotypes more than personal and idiosyncratic outlook', it is difficult to arrive at definite conclusions in the absence of group reference points or base lines from which clinicians can assess individual responses or deviations" (p. 320).

The present study attempted to define such "group reference points." It sought normative data on the responses of children, ages 8 to 17, to a self-administered projective question asking what animals they would and would not like to be.

SUBJECTS

The population for this study was the entire school system of a suburban New Jersey community of approximately 22,000 residents.[3] Because of the level of reading and writing required for the questions, only students in grades 3 through 12 were tested. Some data were available on 7 and 18 year olds but these were too few for statistical treatment. Positive animal choices for 1983 boys and 1880 girls were recorded with negative choices for 1921 of these boys and 1870 girls.

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[1] The author is indebted to Dr. David for his review of this manuscript.

[2] Cole, D. L. Personal communication. 1960.

[3] The author is grateful for the cooperation and assistance of Dr. Harold Hoffman, Superintendent of Schools, and to the principals and teachers of the Livingston, New Jersey, public schools.

METHOD

The following written, projective questions were asked:

Make believe that everyone had to be an animal for 24 hours.

What animal would you most want to be?

....

What do you think are the 3 nicest things about this animal?

1.
2.
3.

What animal would you least want to be?

....

What do you think are the 3 worst things about this animal?

1.
2.
3.

Respondents were also asked to indicate their age, grade, and sex. Home room teachers passed out the test forms with instructions only to complete them. They did not permit questions, such as how to spell a particular animal's name, lest even one such oral question influence the response of others. The entire school system wa tested on the same day so that communication between students abou their responses could not influence respondents who had not yet been tested.

RESULTS

Positive and negative animal choices which accounted for more than one per cent of the total responses of either boys or girls are presented in Tables I and II.

One hundred positive animal choices were made by the boys. Of these, 15 were chosen by more than 1% of the total group and these accounted for 84.5% of the total responses. Fifty-six positive animal choices were elected by only 1, 2, or 3 boys. These 56% of the animal categories repre-

TABLE I—Percentage of Positive Animal Choices Greater Than One Percent of Responses of Boys or Girls

Animal Choice	Boys' Percentage	Girls' Percentage
Dog	31.7*	34.5*
Horse	9.4*	16.7*
Bird	9.3*	10.1*
Cat	7.0*	18.4*
Lion	6.2*	1.3*
Monkey	5.5*	3.3*
Bear	2.4*	**
Deer	2.3*	2.9*
Tiger	1.8	**
Elephant	1.7	**
Eagle	1.6*	**
Ape	1.6	**
Rabbit	1.5	2.9*
Snake	1.3	**
Gorilla	1.2	**
Giraffe	**	1.1
Total	84.5%	91.2%

*Animal is chosen by children at all age levels.

**Less than one percent of responses.

TABLE II—Percentage of Negative Animal Choices Greater Than One Percent of Responses of Boys or Girls

Animal Choice	Boys' Percentage	Girls' Percentage
Pig	13.1*	14.9*
Snake	8.3*	9.4*
Cat	7.3*	5.2*
Rat	7.1*	4.7*
Skunk	6.9*	6.8*
Elephant	6.8*	8.5*
Lion	3.9*	7.7*
Mouse	3.5*	2.8*
Ant	3.5*	1.6
Horse	2.6*	2.9*
Bird	2.5*	2.5*
Dog	2.2	3.2*
Fish	2.1	2.1*
Worm	1.8*	1.1
Cow	1.6	1.8*
Monkey	1.5	1.6
Hippopotamus	1.4	1.6*
Deer	1.4*	**
Ape	1.3	**
Rabbit	1.2	**
Tiger	1.2	1.6*
Bear	1.1	2.3
Fly	1.0	**
Gorilla	**	2.2
Donkey	**	1.3
Total	83.3%	85.8%

*Animal is chosen by children at all age levels.

**Less than one percent of responses.

sented only 4.4% of the total responses.

Among the girls, 58 positive animal choices were named. Of these, 9 were found with a frequency greater than 1% of the total responses and accounted for 91.2% of the total responses. Thirty-four animals, or 58.6% of the choices, were named only 1, 2, or 3 times representing 2.9% of the total responses.

When asked to elect negative animal choices, the boys named a total of 116 animals, 23 of which were found in more than 1% of the questionnaires. These 23 choices made up 83.3% of the total responses. Seventy-two animals were named 1, 2, or 3 times and accounted for only 5.8% of all responses.

The girls named 89 negative animal choices, 21 of which attained a frequency of 1% or greater and totalled 85.8% of all responses. Forty-three animals were named 1, 2, or 3 times and represented only 3.0% of the total responses.

A chi-square test between boys' and girls' positive choices greater than 1% was significant at less than the .001 level of probability. Similarly, a chi-square test between negative choices of boys and girls was significant at less than the .001 level of probability. Significant sex differences in both positive and negative choices were thus found.

An attempt to probe possible age differences was made by constructing chi-square tables of the most frequent choices, both positive and negative, versus the ten age levels. For both boys' and girls' positive and negative animal choices, the resultant probability that the ten age levels represented a common population was less than .005. However, similar results were not obtained when 2 by x chi-square tables were constructed of age versus the most frequent responses grouped as one category plus "other animals" as the second category. The resulting probabilities were: .10 — .05 for the 6 most frequent positive choices of the boys; .50 — .30 for the 4 most frequent girls' positive choices; less than .001 for the boys' 6 most frequent negative choices; and .30 — .20 for the 7 most frequent negative choices of the girls.

DISCUSSION

This projective question in the form of animal associations should be of value as a screening device. It is felt that its efficacy as a self-administered, written, group technique was demonstrated. Clinically, it has been most useful in individual evaluation which places stress upon the reasons the subject lists for his animal choices. These can be interpreted dynamically and they can be analyzed into a number of content categories which should be studied further.

The possibility of utilization of this device for screening is inferred from the clustering of responses in certain animal categories. These can be interpreted statistically and, at least superficially, as similar to the popular responses on the Rorschach Test. That 84.5% of the positive responses of boys were contained in 15 animal choices and 91.2% of the responses of girls were contained in 9 animal choices is the basis for this interpretation. Furthermore, 81.2% of all 3,863 positive choices of both boys and girls were in the following 8 categories: dog, horse, cat, bird, monkey, lion, deer, and rabbit.

This clustering of responses could be interpreted as a kind of conformity to certain social roles. The general trend to greater individuality of choice with age was noted when the ratio of number of animal choices to total number of responses was computed for each age group of boys and girls. In some respects, these results parallel other data from the field of developmental psychology; for example, the sharp drop in ratio of number of choices to total number of responses in 12-13 year old boys, apparently entering adolescence. Girls were somewhat more conforming to their sex group norms than were boys. This, too, has been confirmed by researchers in developmental psychology.

Much more research is needed with this technique. The reported data were derived from a middle class, suburban population. If, in fact, animal choice reflects life role, then certainly cultural factors must be influential in determining one's choice. Therefore, other normative samples should be gathered.

A question also arises as to stability or reliability of animal choice. The present data reveal significant changes in choice from age group to age group and it is likely that individual choices also change with time much as interest test profiles demonstrate change and variation. There is the further question of variation in animal choice, not only as a function of age or a prolonged period of time, but as a function of immediate situational factors. We have ample research evidence of the effects of these factors in other more probing and searching projective techniques.

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The Validity of the Role Construct Repertory Test as a Measure of Sexual Identification

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Summary: The Role Construct Repertory Test (RCRT) of George Kelly's personality theory has been used as an indirect measure of sexual identification by several investigators. They have assumed to date that unselected males taking the test will see similarities in constructs between themselves and other male figures on the test (e.g., their fathers, male teachers, etc.), and that unselected females will so "identify" with female figures. The present study tested this hypothesis, using a group of 103 college students (51 males, 52 females). The test was scored in four slightly different ways. Results indicate that the scoring methods have moderate to low reliability on re-test, but that differences in the predicted direction can be found. Normal individuals do identify with sex-appropriate role figures on the RCRT.

The Role Construct Repertory Test (RCRT) plays a central role in the personality theory advocated by George Kelly (1955). This instrument is designed to elicit *S*'s personal constructs, which in turn provide the clinician with the latter's view of reality. Since an *S* must indicate his perceived similarity and dissimilarity to people whom he recalls as being important figures in his life, it has been taken on *a priori* grounds that the RCRT can be used to measure the extent to which *S* identifies with such significant persons. Jones (1954) used the RCRT to investigate the identifications of normal males and psychiatric patients, and reports that the normals perceived greater similarity between themselves and their fathers than did the patients. Lederman (1957, 1961) has also used the RCRT as an identification measure in the study of feminine characteristics among groups of male *Ss*, and to support his theory of delinquency. Both Pederson (1958) and Hunt (1951) have presented evidence that personal constructs elicited on re-test have consistency, and that therefore the RCRT may be considered a reliable personality assessment technique.

The belief in the RCRT as a valid method for assessing sexual identification rests on the assumption that male *Ss* see similarities between themselves and the male figures of the test, and that females reflect a comparable pattern for the female figures of the test. This "similarity and contrast" aspect of Kelly's theory is very important, because a construct is essentially the way in which two items of experience, people, etc., are alike and different from a third (see esp. Kelly, 1955, p. 51). Hence, e.g., if a male is identifying appropriately, he should see construct similarities between himself and other males on the test, and differences between himself and female figures on the test. There will of course be overlap, so that he will construe similarities between himself and *some* females, but presumably, the over-all weighting should be in the direction of maleness. The purpose of the present study was to test this one notion. The hypothesis under test is that males will identify with male figures and females with female figures on the RCRT in a ran-

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[1] The present study was submitted by Giles in partial fulfillment of the requirements for the Master of Science degree at Washington State University, Pullman, Washington. Thanks are extended to Clare W. Thompson and J. H. Elder for their helpful comments.

dom sampling of Ss drawn from a college population.

METHOD

The Role Construct Repertory Test

The RCRT is a rather difficult test to present in concise fashion, and the reader is referred to Kelly (1955, Chp. 5) for a more complete explication. In the present study, the grid form was used because it was easily adapted to group administration. This form employs 22 rows and 22 columns, adding up to 484 boxes on the grid. Each column represents a "role figure" or important person in S's past life. For example, the instructions ask S to write in the name (at the head of one column) of "a person with whom you feel most uncomfortable" (a typical role description; there are 21 other such headings, including a column for the self, for one's mother, father, etc.). The sex of each figure is indicated by encircling either M or F adjacent to the role figure on the grid sheet. At the righthand margin of the grid (answer) sheet there are 22 spaces, one for each row, in which S is expected to list both his CONSTRUCT and CONTRAST for certain groupings of the 22 figures he has identified across the 22 columns.

To do this, S is instructed to compare three of the "role figures" at a time. For example, he may be asked to combine his "physician" with his "closest friend of the opposite sex," and state some way in which they are alike (CONSTRUCT) and yet different from his "father" (CONTRAST). Any given S might resolve this comparison by writing that his physician and best friend are "even tempered" (CONSTRUCT) and his father is "hot tempered" (CONTRAST). Actually, this would delimit the dimension of a temperament construct which the S uses to construe individuals in his life, and the contrast end is merely one aspect of this temperament construct dimension rather than something apart from it, or different from it.

After he has generated a construct in response to the test instructions for any one of the 22 tri-figure combinations, S must run through all of the remaining figures around which the construct was *not* specifically generated and place an X in the appropriate box of the grid when the CONSTRUCT applies. Thus, if he sees himself as "even tempered," he would check an X in the grid box under the self "role figure." It is in this way that E can indirectly assess how many constructs S applies in common between himself and the various other role figures of the grid. Masculine Ss should have more in common with masculine role figures, and vice versa for feminine figures. There were four methods of scoring for sexual identification in the present study:

Long M/F: Taken from Lederman (1954), and computed as follows: (1) determine the mean number of check (i.e., X marked) and void matches between the self role figure and all other male figures on the grid; (2) repeat this step for self and all female figures; (3) divide the female mean into the male mean and multiply by 100.

Short M/F: (1) determine the mean number of check (i.e., X marked) matches between the self role figure and all other male figures (i.e., disregard voids); (2) repeat this step for self and female figures; (3) divide mean female matches into male matches and multiply by 100.

Long Family M/F: computed exactly as the *Long M/F* score, except that only the self and family role figures of father, mother, brother and sister are used. If any of these family members are lacking in S's life (as lack of sib, not recalling father or mother, etc.), the RCRT asks that S substitute an individual who has been "most like" the role figure in question. Hence, it is always possible to use a scoring of this nature.

Short Family M/F: computed exactly as the *Short M/F*, except that once again the only role figure used for comparison with the self are father, mother, brother and sister.

The rationale for using several scoring methods stem from one's view of the nature of identification, and a rather broad approach was taken so that investigators of various persuasions might find something of interest in the results. If one wishes to limit identification to only family figures, then the *Family M/F* would have the greatest relevance; on the other hand, many personality theorists think of identification as transcending the family circle and reaching out into all male-female figures of importance in *S*'s life. The *Long* vs. *Short* scoring distinction stems from the demands of Kelly's Role Construct Theory. That is, on the RCRT a "match" is often counted not only when the X is checked in both the self and some other male role figure on the grid; it is also counted when there is a void (i.e., no X is placed) for both the self figure and some other male figure. Kelly views the process of construing as dichotomous or dialectical in nature, so that it is just as correct to think of a match at the CONTRAST (the void) end as it is to think of a match at the CONSTRUCT (the X) end of the dimension. Since there is some room for debate on this matter, it was decided to score the test *both* ways: the *Long* method follows Lederman (1954) and Kelly's general logic, and the *Short* method is confined only to matches on the CONSTRUCT end.

Subjects and Procedure

The *Ss* were 103 college students (51 males, 52 females) drawn from introductory psychology and sociology courses. They ranged in CA from 17 to 21 yrs., and the modal age was 18. They were tested in classrooms after the regularly scheduled period, in groups of from 9 to 37 *Ss* at a time. Before taking the RCRT, *Ss* all took the M/F scale from the Minnesota Multiphasic Personality Inventory (MMPI) (Dahlstrom & Welsh, 1960). It was thought desirable to have an independent estimate of masculinity-femininity, as a form of concurrent validity to compliment the content validity approach under study. The reason that a counterbalanced order was not followed in using the MMPI and RCRT was because of the complexity of the latter test's administration. It was feared that *Ss*' motivational level might suffer if, after completing one rather complex scale, a second test were introduced—albeit a much easier one to take.

In order to facilitate administration of the RCRT, an enlarged cardboard model of the grid was made, and used by *E* as he took each group through the testing procedure. This visual aid seemed to help considerably and actually only a minimal amount of confusion was voiced by *Ss*. In order to check on the reliability of identification measures, two groups comprising 22 females and 19 males were asked to return in one week in order to "complete testing" (this request was made at the end of the initial testing). When they returned one week later, these *Ss* were informed that their initial MMPI and RCRT records had been destroyed, and they were asked to take these tests over again.

RESULTS

Since the female matches were divided into the male matches, this would naturally mean that a score greater than 100 (the number by which the ratio was multiplied) is in the direction of male identification. The experimental hypothesis predicted that males would score above 100, females below, and that this difference would reach significance. Before presenting the actual findings, it would be interesting to note the one week test-retests of the RCRT and MMPI measures. The sexual identification measures reflected the following Pearsonian correlations: *Long*

M/F – males .50 ($P < .05$), females .34 (N.S.); *Short M/F* – males .37 (N.S.), females .37 (N.S.); *Long Family M/F* – males .46 ($P < .05$), females .41 ($P < .05$); and *Short Family M/F* – males .54 ($P < .01$), females .55 ($P < .01$). The MMPI M/F scale was considerably more reliable, with the values for males .84 ($P < .01$) and for females .90 ($P < .01$). Turning to the actual RCRT findings, Table I presents the means, medians, standard deviations and t-tests between males and females on the four methods of assessing sexual identification.

Note that the variances of Table I are heterogeneous, and F-tests run indicated that all but *Long Family M/F* had a significantly larger variance for males than for females. Because of this finding, the P-values of the t-tests were determined using only one half of the degrees of freedom that ordinarily would have been appropriate (after Edwards' suggestion, 1958, p. 274). Despite this restriction, the findings of Table I clearly support the experimental hypothesis. In every instance, males significantly identify with male role figures and females with female figures. The final point of interest is to consider the intercorrelations of the RCRT measures and the MMPI M/F scale. Since the MMPI scale is scored in the direction of femininity – the higher the score, the more feminine is *S* – we would expect a negative correlation with the RCRT measures, which were scored in the masculine direction. The actual Pearsonian correlations were very disappointing, however, and none reached significance. The findings were MMPI M/F and: *Long M/F* – males –.11, females .07; *Short M/F* – males .05, females .20; *Long Family M/F* – males –.03, females .17; *Short Family M/F* – males .06, females .12.

DISCUSSION

The major hypothesis under test was confirmed: one can expect groups of normal individuals to identify with sex-appropriate role figures on the RCRT. The low level of reliability suggests considerable variation in measurement, and casts doubt on the potential utility of this instrument for practical use. The sources of this variability are undoubtedly the changes in constructs that *S* employs on retest, as well as his changes in the identity of the role figures construed. The RCRT is designed to capture such idiosyncratic fluctuations in the construing of environmental figures, and one should not actually expect to approximate the high level of reliability found in the MMPI measure. Yet valid predictions depend upon reliable measures.

Somewhat paradoxically, the easiest measure of identification to compute proved to be the most reliable and also to discriminate between the sexes quite well, except for a rather large variance differential. This is the *Short Family M/F* measure, which stems from an assessment of matches in constructs between the self role-figure and only the role-figures of *S*'s immediate family. Since this assures a more stable standard of comparison (i.e., one's family does not change

TABLE I—Means, Medians, Standard Deviations and t-Tests of Significance of the Four Methods of Assessing Sexual Identification

RCRT Scoring Method	Males (N = 51) Mean	Median	S. D.	Females (N = 52) Mean	Median	S. D.
Long M/F	108.14	108	18.20	92.08	93	13.90**
Short M/F	110.67	103	35.65	97.37	98	25.05*
Long Family M/F	113.16	112	24.69	87.69	86	19.53**
Short Family M/F	125.53	117	45.31	87.33	83	33.06**

*Sign. less than comparable score for males at .05 level.
**Sign. less than comparable score for males at .01 level.

identity), a somewhat more respectable reliability was found on retest (approximately .55 Pearsonian correlation. $P < .01$). Of course, the lack of consistency between the MMPI and the RCRT leaves us wondering precisely what "kind" of identification measure is involved, but there is no *a priori* reason for believing that the RCRT is necessarily to blame here. As a summary evaluation, the authors conclude that though Kelly and his students cannot be faulted on their presumption that the RCRT indirectly assesses one type of sexual identification, the practicing clinician who chooses to use the *Short Family M/F* should be very cautious and highly tentative in making interpretations based upon this measure.

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A Review of Sentence Completion Methods In Personality Assessment[1]

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Summary: Theoretical and empirical support for a variety of sentence completion tests are examined. Reasons for and consequences of, variations in construction, administration, scoring and interpretation are considered. Much of the variation is apparently gratuitous and has retarded the development of a systematic body of information relevant to any one test. Generally, the S-C has been found to be a valuable clinical and research instrument that compares favorably in economy and power with other available psychometric devices.

The sentence completion method has its origins in the work of Ebbinghaus (1897), Kelley (1917), and Traube (1916) who used the method to measure intellectual variables. Though there have been more recent attempts to use the test to investigate intellectual capacity (Copple, 1956; Piltz, 1957; West, 1958), it has been used primarily in recent years as a device for personality assessment. Payne (1928) and Tendler (1930) are generally credited with being the first to use sentence completions for personality assessment.

Since that time, sentence completion methods have become increasingly more popular and the sentence completion has become a regular part of standard clinical test batteries (cf. Carr, 1958; Peskin, 1963). The essence of the method is to present the subject with a sentence fragment or stem which he is asked to complete. The instructions, content and structure of the stems vary from form to form as does the manner of categorizing the responses, but the method has generally attractive features. The content of the stems may be adapted to meet specific clinical and research purposes, and the method lends itself to group administration.

These two features of flexibility and economy seem to have been of paramount importance in gaining the sentence completion the wide popularit it currently enjoys. Sundberg (1961) found that of all the psychologica tests and instruments used in clinical services, the sentence completion ranked 13 in frequency of use, and among the group personality instruments the sentence completion was second only to the MMPI.

The flexibility and popularity of the method have led to a proliferation of sentence completion forms, the origins of which are often obscure (cf. Rohde, 1948; Stein, 1949). The sentence completion method has been used to assess a variety of attitudes: attitudes toward Negroes (Brown, 1950), attitudes toward old people (Golde and Kogan, 1959), attitudes toward school life (Costin and Eiserer, 1949), attitudes toward peers and parents (Harris and Tseng, 1957), attitudes toward career choice (Getzels and Jackson, 1960), attitudes toward mental hospitals (Souelem, 1955), and attitudinal change (Lindgren, 1954).

The sentence completion method has often been used to predict achievement for specialized groups. Murray and Mackinnon (1946) used a sentence completion form to evaluate candidates in the classic OSS studies. The sentence completion has been used to predict the success of graduate students in clinical psychology (Kelly and Fiske, 1950, 1951; Samuels, 1952), and to predict the success of flight cadets (Holtzman and Sells, 1954).

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[1] The author is indebted to his colleague, Dr. Bernard I. Murstein, for his aid and encouragement throughout the development of this paper, and to Dr. Bertram R. Forer for his generous bibliographic assistance.

The sentence completion has been used to assess differences between a wide variety of contrasted groups. Touchstone (1957 used a sentence completion test to investigate Negro-white differences. Smith (1952) compared stutterers to non-stutterers, Mac Brayer (1960) investigated sex differences in sex perception and Farber (1961) used a sentence completion to assess differences in national character.

The sentence completion has proved to be useful in virtually all areas of clinical psychological research. The method has been used to examine schizophrenic language (Cameron, 1938, 1938a; Ellsworth, 1951), and to examine the adjustment of patients to hospital routines (Luft, Wisham, and Moody, 1953). The sentence completion method has been used to evaluate counselor training (Kirk, 1956), and it has also been used in a case study of a mass murderer (Kahn, 1960).

In the bulk of these studies, the sentence completion methods used were "custom" tests, devised specifically for the particular research project. The ease of constructing sets of stems, the content of which bears a *prima facie* relationship to the variables under investigation, has encouraged a wide variety of research. Consequently, the development of a systematic and parametric body of information relevant to any one sentence completion method has been retarded. Additionally, in light of the number of sentence completion forms extant, general statements made about the method must be viewed with caution. The inter-changeability of these various forms across populations and for different purposes is unknown.

There have, however, been several attempts to construct and present "standard" forms (Holsopple and Miale, 1954; Sacks and Levy, 1950; Rohde, 1946, 1957; Stein, 1947; Forer, 1950, 1957, 1960). Special standard sentence completion forms for use in the armed services were developed by Bijou (1947), Flanagan (1947), Trites, Holtzman, Templeton and Sells (1953), and Willingham (1958). The attempt at standardizing a sentence completion form, which has probably been most rigorous, had most impact, and provided most stimulation for further research has been that of Rotter and his associates (Rotter, 1946; Rotter, Rafferty and Schachtitz, 1949; Rotter and Rafferty, 1950, 1953; Rotter, 1951; Rotter, Rafferty and Lotsof, 1954).

The Rotter Incomplete Sentences Blank (ISB) was developed out of earlier work done by Rotter and Willerman (1947), Shor (1946), Hutt (1945), and Holtzberg, Teicher and Taylor (1947). Though stemming from work done in the army, Rotter has extended the ISB for use with college and high school populations as well as the general adult population. The ISB consists of forty stems ranging in structure from "I . . . " to "My greatest worry is . . . . ". The general aims of the ISB are to provide an economical instrument for group use in assessing general psychological adjustment. A discussion of the theoretical rationale underlying the ISB, its structure, its scoring methods, and its weaknesses and strengths will be presented after a consideration of more general issues.

WHAT IS THE SENTENCE COMPLETION?

The sentence completion is a method. Its status as a test or as a projective technique varies with the psychometric criteria used and with the specific sentence completion method. For Cronbach, "a test is a systematic procedure for comparing the behavior of two or more persons" (1960, p. 21). None of the available sentence completion methods would have any difficulty in meeting this criterion. If, however, the criteria are made somewhat more demanding as in Anastasi's definition that "a psychological test is essentially an objective and standardized measure of a sample of behavior" (Anastasi, 1954, p. 22), then the words *objective, standardized,* and *measure* in combination are sufficient to eliminate most sentence completion methods from further consideration as tests.

The decision as to whether the sentence completion method is or is not a test may perhaps be evaded safely as a matter of little pragmatic concern. The question as to the status of the sentence completion as a projective device is a matter of an entirely different magnitude that goes beyond taxonomic nicety. The data yielded by sentence completion methods can have no intelligibility unless there is a clear understanding of the psychological processes involved in the production of the data.

Are sentence completion responses to be treated as signs or samples? Is the response controlled by the subject and shaped by consciously mantained attitudes and beliefs devoid of deeper psychic meaning? Or, does the sentence completion response tap deeper psychic levels, involving urges and desires of which the subject is, at best, but dimly aware? Is the sentence completion a projective test and will the projection hypothesis[2] serve as an adequate theoretical rationale for the use of the method? What a test can or can not do involves notions of validity and implies a relatively advanced stage in the development of a psychometric instrument. A prior stage is the determination of what a test ought to, in principle, be able to do. These questions concerning the nature of the sentence completion method need answering if this prior stage is to be successfully negotiated.

Few tests have so resisted consensual typological classification as has the sentence completion. There are those who are decisive in their appraisal of the sentence completion as a projective device. Rohde states that, "In unconstrained response to sentence beginnings, the subject inadvertently reveals his true self, since there is no way in which he can anticipate the significance of his answers for personality study" (Rohde, 1946, p. 170). Holsopple and Miale (1954), Sacks and Levy (1950) are all in substantial agreement with Rohde that the sentence completion is a projective technique and that the projection hypothesis serves as the theoretical rationale for its use.

Others have expressed reservations though still regarding the sentence completion as a projective technique. Campbell (1957), in an attempt at test classification, believes the sentence completion to be a projective test, but one that differs from the Rorschach and TAT in that "rarely is the respondent unaware that he has been revealing his own attitudes" (Campbell, 1957, p. 208). Lindzey (1959) similarly regards the sentence completion as a projective test, but one that is most like the Rozenweig P-F. Forer (1950) regards the sentence completion as a "controlled projective test" (Forer, 1950, p. 3).

Still others are apparently not at all sure of what to make of the test. Hanfmann and Getzels (1953) regard it as "half way between a projective technique and a questionnaire" (p. 294). Rotter and Rafferty (1950) are similarly perplexed: "The sentence completion method of studying personality is a semistructured projective technique . . . as in other projective devices, it is assumed that the subject reflects his own wishes, desires, fears and attitudes in the sentences he makes" (Rotter and Rafferty, 1950, p. 3). Such a statement is entirely consistent with the view that the sentence completion is a bona fide projective test. The following statement made by the same authors is not: "The responses tend to provide information that the subject is willing to give rather than that which he cannot help giving" (Rotter and Rafferty, 1950, p. 3). The juxtaposition of these two statements helps to highlight the difficulties involved in attempting to assess the sentence completion, its limits and its potential.

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[2] The projection hypothesis, which generally serves as the theoretical rationale underlying the use of projective tests, was made most explicit by L. K. Frank (1939; 1948). Presented simply, the projection hypothesis states: when an individual is forced to impose meaning or order on an ambiguous stimulus complex, his response is a "projection" of his "feelings, urges, beliefs, attitudes, and desires..." (Frank, 1948, p. 66). The general relevance and validity of the projection hypothesis has been critically examined and questioned by several authors, (Bellak, 1950; Cattell, 1951; Murstein, 1963).

One of the major theoretical controversies in the field of projective testing which has special relevance for the sentence completion revolves around the "levels hypothesis". Stated most simply this approach conceptualizes personality as arranged at various and different levels of psychic functioning and organization. Different tests tap different levels and "the expression of a motive in one context or at one level of psychological organization is not highly correlated with its manifestations at another psychological level or in another stimulus context" (Forer, 1957, p. 359). Carr (1954, 1956, 1958) advances the levels hypothesis to explain the lack of congruity among data derived from different projective techniques.

Accepting the level hypothesis forces us to raise the same question in a slightly different context: Where do we position the sentence completion? What level of personality does it tap? Sacks and Levy help us very little when they say, "The SSCT (Sacks Sentence Completion Test) may reflect conscious, preconscious, or unconscious thinking and feeling" (Sacks and Levy, 1950, p. 375). Carr (1954, 1956) and Hanfmann (1947) agree that the material elicited by the sentence completion comes from a personality level closer to awareness than material elicited by either the Rorschach or the TAT. Hanfmann and Getzels (1953) are but a bit more precise: "The test (sentence completion) elicits material from a range of levels but with the bulk of it being fairly close to awareness" (Hanfmann and Getzels, 1953, p. 290). Fitzgerald (1958) in accepting this position also points out that a less "deep" test is not therefore a less valuable one. Where inferences about overt behavior are to be made, he believes that a highly structured, behaviorally-oriented projective test, such as the ISB may be more appropriate than the TAT, which he believes is better than the ISB as a "source of inferences about conflict in a given need" (Fitzgerald, 1958, p. 202).

Considering the significance of the levels hypothesis, there is unfortunately relatively little hard supporting empirical evidence. Murstein (1963) says in this regard "although the 'levels' approach appears intuitively tenable, no conclusive demonstration of the existence of discriminable levels has been made through experimental research" (Murstein, 1963, p. 67).

Stone and Dellis (1960) have conducted what is probably the most specific empirical test of the levels hypothesis. Stone and Dellis hypothesized an inverse relationship between level of personality tapped by psychological tests and the degree of stimulus structure inherent in each of the tests. The authors gave the WAIS, The Forer Sentence Completion Test, TAT, Rorschach and Draw-a-Person to a group of 20 patients hospitalized for psychiatric conditions. The tests, in the order named, were evaluated by the authors as possessing decreasing amounts of stimulus structure, and were thus hypothesized to reach increasingly less conscious levels of personality organization.

Stone and Dellis submitted the protocols to judges for "blind" ratings of amount of psychopathology. The results of the study were in striking agreement with the hypotheses. The test protocols were rated for psychopathology in the precise order predicted by Stone and Dellis. The authors conclude: "If supported by future observation and research, the Levels Hypothesis could conceivably affect the entire concept of validity in regard to projective techniques" (Stone and Dellis, 1960, p. 339).

Stone and Dellis' work has, however, been criticized by Murstein (1963) for not having a necessary control. Murstein points out in reviewing Stone and Dellis' results that, "The results might be explained on the grounds that most projective scoring systems emphasize unhealthy traits, and that projective responses are more likely to reflect frustrations than positive thought. Accordingly, the more a test permits projection in the responses made to it, the more likely it is to be scored as 'unhealthy'" (Murstein, 1963, p. 67). We believe Murstein's point to be well taken. Tests may vary in the degree to which they *permit* projection to occur without such demonstrated differences in tests' potential being related to structural differences in personality organization.

Murstein's suggested control we believe, however, to be less well considered. He suggests that Stone and Dellis should have obtained protocols from a group of normal subjects as well. It is to be expected that a group of normals would have produced protocols with less rated psychopathology. The *relationship* among the five tests, however, should be the same as obtained with the psychiatric population. This would be the expectation whether one accepts Stone and Dellis' Levels Hypothesis or Murstein's suggestion that tests differ in the degree of projection allowed.

A reconciliation of these views, at least for purposes of positioning the sentence completion, is entirely possible. A position vis-a-vis the levels hypothesis is not really necessary in order to understand the potential limits of the sentence completion. Although, as already discussed, there exists some disagreement as to the nature of the material elicited by sentence completion methods, it does seem to be the general view that the sentence completion is truly a projective test. Beyond that, most theorists apparently agree that the material elicited by the sentence completion is typically less dynamic than the material elicited by such tests as the Rorschach, TAT, and projective drawings. All this may be so whether personality is viewed as layered in different levels of psychic functioning, or whether tests are arranged in a hierarchy according to degree of permitted possible projection.

Often implicit in the levels hypothesis is the notion that tests which tap deeper layers of personality organization are better or more valid than tests which tap less deep layers. This position has, however, failed to receive empirical support. Deep levels are not necessarily better predictions of various validity criteria than less deep levels. In fact, the sentence completion is probably better substantiated than the TAT, Rorschach and DAP. Both reliability and validity tend to vary inversely with depth of level.

One further and final observation concerning the levels hypothesis; the levels hypothesis is too easily, and has been too often, abused. Accepting such a theoretical orientation in no way alters the standards for scientific rules of evidence. Though the levels approach may explain inconsistency in projective test findings, it is clearly not an alternative to an empirical test of validity. It continues to be the researcher's task to provide a behavioral referent to substantiate his claim of test validity, irrespective of the level at which he presumes to be operating.

THE EFFECTS OF INSTRUCTION AND SET

The instructional set given the subject varies from one sentence completion form to another. The instructions used with the ISB are as follows: "Complete these sentences to express *your real feelings*. Try to do every one. Be sure to make a complete sentence" (Rotter and Rafferty, 1950, p. 5). The emphasis of these instructions is on truthful rather than immediate responding. The instructions to the Miale-Holsopple test are even less demanding; they neither ask for quick responses nor for truthful responses. The subject is told to "complete each sentence in whatever way you wish." Rotter and Willerman (1947) and Rotter and Rafferty (1950) claim that the instructions that emphasize speed tend to produce short responses similar to responses typically obtained by word association methods. However, Sacks and Levy (1950), Stein (1947), Forer (1950), Murray, *et al.* (1948) all stress speed of responding.

There is no clear evidence that instructional emphasis on quick responding produces more immediate responding than instructions lacking such emphasis. Carter (1947) found that neurotics produce longer latencies than normals. A study by Cromwell and Lundy (1954), comparing the effects of instructions stressing speed to instructions emphasizing real feelings, found no significant differences in speed attributable to the differences in the instructions.

However much instructions may differ, it is safe to say that all of these authors wish to achieve essentially the same goal; namely, honest, non-censored responding, thereby eliciting material which will be differentially and predictively useful. If instructions vary, it is only because each author believes his instructions to be most efficient. The paucity of research findings relevant to the effects of different types of instructions on sentence completions encourages the continuation of this often gratuitous variation. Benton, Windle and Erdice (1957), in reviewing the procedural differences among sentence completion forms, conclude that "The cumulative effect of these many procedural variations is a presumptive lack of comparability among studies" (Benton *et al.*, 1957, p. 6).

It might be expected that the sensitivity of sentence completion responses to variations in the preparatory instructions would vary with the purposes of the respondents taking the test. Certainly, where the test is used in an industrial research project to measure employee attitudes (Miller and Gekoski, 1959; Friesen, 1952) the respondents' orientation might be expected to be quite different from the orientation of the patient voluntarily seeking psychotherapeutic help at an adult outpatient clinic (Hiler, 1959). It is not unreasonable to speculate that such presumed differences in test-taking attitudes would either obliterate or intensify or, in any event, interact with differences attributable to variations in instructions. Whatever the test constructor might think of his test instructions, the crucial question is what does the subject taking the test think of them?

A study by Meltzoff (1951) emphasizes the importance of mental set in response to sentence completion tests. Meltzoff hypothesized that the subject's set, as determined by a) test instructions and b) stimulus tone, directly affects the tone of the sentence completion response. To test these hypotheses, Meltzoff randomly assigned an equal number of a population of 120 college students to one of four treatment categories. All subjects were required to take a sentence completion test designed specifically for this study by the author. The test consisted of 30 of each of three types of stems: positive (e.g. He loves . . .), negative (e.g. He hates . . .) and neutral (e.g. He is usually . . .). The test was the same for all subjects, but the instructions given to the subjects varied with the treatment condition. One group of subjects worked anonymously and was asked to produce an impression of good emotional adjustment. A second group was required to sign their names to the tests and was told that the results would be discussed with the university authorities; a third group took the test anonymously and was told that it was the test that was being investigated; the fourth group also worked anonymously and was asked to try to produce emotionally disturbed protocols.

The test responses were rated by experienced judges for adjustment, and the results supported both of the main hypotheses. The degree of threat inherent in the instructional set correlated with the frequency of positively toned responses and correlated inversely with negatively toned responses. Further, Meltzoff found that negatively toned stems produced more negatively toned responses, and that there were several significant interactions between mental set and stimulus tone on the quality of the responses. "The mental sets imposed by variations of instructions had most differential effect with neutral stimuli, and least with negative stimuli. Negative stimuli tended to evoke negative responses regardless of the test condition, and in general exhibited the strongest effect among the three types of stimuli" (Meltzoff, 1951, p. 184).

From these findings Meltzoff concludes that subjects can censor their responses to the sentence completion to a considerable degree. His incidental finding that subjects who experienced more threat took more time to complete the test supports the view that subjects are able to manipulate consciously their responses to the test in a manner consistent with the image of themselves that they wish to present. Meltzoff's conclusions are consistent with Rotter and Rafferty's (1950) speculation that the test provides information which the subject is "willing" to give. Rhode (1946), however, on purely theoretical grounds, denies that the subject is able to control his responses to the sentence completion method. Further, she believes that it is "immaterial" whether the subject is telling the truth or not; he reveals himself in either event.

The importance of Meltzoff's findings is considerable. It directly challenges the tenability of the projection hypothesis as applied to the sentence completion, and raises questions about its validity with other projective devices. Meltzoff's findings would seem to require of the sentence completion user that he understand the subject's approach to the test if he is to understand the subject's responses.

One note of modification is, perhaps, in order. There is, of course, a very real question as to the generalizability of these findings from a normal group of college students to the clinical populations for which the sentence completion is most generally intended. Additional research is needed.

THE EFFECTS OF VARIATION OF THE SENTENCE STEM

The flexibility of the sentence completion method, as noted previously, has led to a proliferation of sentence completion tests, many of which were designed for a single and limited research purpose. The research purposes have determined the stem content and form, which typically have reflected sophistication at the level of face validity. Many researchers have assumed that structuring the stem with regard to content or need would elicit responses pertaining to the same content and, or, need. There is, therefore, a considerable literature involving the use of widely different stems.

There are, unfortunately, no definite experimental studies which have systematically investigated the effects of variation in stem structure or form. What work there has been investigating the effects of stem variation has tended to fall into one of two categories; a) investigations dealing with stem structure or ambiguity and b) investigations dealing with the person of reference in the stem, i.e. self or other reference.

Stem Structure

The structure of a sentence stem is defined by the determining power of the stem's content. Nunnally's definition, "If there is an agreed-on public meaning for a stimulus, it is referred to as a *structured* stimulus" (Nunnally, 1959, p. 339), would probably be acceptable to most people working with the sentence completion method. Structure is high if the content of the stem tends to establish narrow response classes.

The content of sentence stems varies in kind and degree from one sentence completion test to another. Forer (1950) believes his test to be "fairly highly structured" whereas Rotter and Rafferty (1950) characterize their own test as "unstructured." On inspection, the two tests do seem to differ, and Rotter's ISB does seem to be less highly structured than Forer's test. The first stem on Forer's test is "When he was completely on his own, he . . . ;" the first stem on the ISB is "I like . . .". There does, however, appear to be at least some overlap between the two tests. "Men . . . " is a stem from the Forer test, and "My greatest worry is . . . " is a stem from the ISB.

The use of structured items generally reflects the test constructor's desire to direct the responses of the subject to areas pre-determined by him to be of special psychological significance. Such an approach has been exemplified by Forer (1950; 1960). Forer reasons that if we wish to use projective test stimuli to predict behavior we must establish a stimulus equivalence between the test stimuli and the social stimuli in which we are predictively interested. Consequently, the stems in Forer's test were designed to correspond with limited areas of life in which the clinician is likely to be most interested.

The areas sampled by Forer's sentence stems are a) various important interpersonal figures, b) dominant needs, c) environmental pressures, d) characteristic reactions, e) moods, f) aggressive tendencies, and g) affective level. Forer (1950) specifies which stems were designed to elicit material from each area and he provides the user of his test with a check sheet which permits him to note the responses as well as the areas to which the responses relate. Forer says of such a procedure: "Systematic interpretation and critical diagnostic inferences are thereby encouraged and the phases of the diagnostic process can more easily be examined and systematized. In addition, quantitative norms become a distinct possibility" (Forer, 1950, p. 29).

Other sentence completion test constructors have endorsed the use of structured, content determining items. Stein (1947) in his development and extension of the OSS test, similarly used *a priori* content categories, and the sentence stems selected for use in the final form of the test had to meet criteria of category relevance and low response stereotypy. Stein's categories are a) family, b) past, c) drives, d) inner states, e) goals, f) cathexes, g) energy, h) time perspective, and i) reactions to other.

All the stems in Sacks's test (SSCT) are similarly clustered in specific clinically significant content categories. The four categories chosen by Sacks are a) family, b) sex, c) interpersonal relationships, and d) self-concept. These four areas are further subdivided into fifteen sub-categories, each of which is represented by four sentence stems.

Shaping the content of stems to elicit material in specific areas of clinical interest is not, however, a universal approach. Rotter and Rafferty (1950) and Holsopple and Miale (1954) do not position their stems within specified categories. Holsopple and Miale say of their selection procedure: "For many items, the only criterion of selection which can now be identified is that they seemed to be a good idea at the time, and we suspect that some of them remained in the series because we liked them" (Holsopple and Miale, 1954, p. 5).[3]

Though Holsopple and Miale's candor has a certain amount of charm, Nash's (1958) discussion of this problem of content selection is, perhaps, more cogent:

> Variations in response to a sentence frag-

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[3] Talland (1959), in his review of Holsopple and Miale's monograph, has some biting comments to make about such selection procedures.

> ment should be concentrated along a limited number of dimensions, preferably along a single dimension. Simultaneous variation along a variety of dimensions dissipates the information in the responses, leaving little information available in any given dimension which is of interest to *E*. There is, then, an optimum heterogeneity in *S*'s responses: this optimum is characterized by maximum heterogeneity along a limited number of dimensions and by maximum homogeneity along all other dimensions (p. 570).

Nash suggests that in order to achieve this optimum and to increase the predictive efficiency of a sentence completion test, stems should be arranged in a "tight cluster." A tight cluster of stems in one in which the constituent stems are intimately interrelated in content and structure. Nash suggests that when stems have a specified and common content, the responses to these stems are less ambiguous and more easily interpretable.

Forer (1950; 1960a) and Nash are thus in substantial agreement. Forer similarly believes that unstructured stems produce responses which are more difficult to interpret. "The interpreter lacks sufficient information regarding the stimulus situations to determine what the response means. The less the interpreter knows of the stimulus situation the less able he is to determine the role of the response in the total personality and the less able to predict behavior" (Forer, 1950, p. 17). Additionally, Forer believes that unstructured stems make it easier for the subject to avoid getting involved. Structured items, however, force the subject to respond without evasion to areas the items were designed to tap.

The construction of sentence stems with content specifically designed to elicit "significant material" seems intuitively to be a reasonable approach. Unfortunately, support for this approach has remained largely at the level of intuition, and as Rotter and others have shown, intuitions differ. There is no clear evidence to demonstrate that creating stems to conform to specific content areas increases the likelihood of eliciting responses which are significant as well as relevant to these areas. It is conceivable, in fact, that such content structuring may threaten the subject. Holsopple and Miale believe that highly structured stems do indeed constitute an obvious threat which in turn leads the subject to evade by giving responses which merely reflect conscious attitudes. Clear experimental support for this position is similarly not available.

It must be understood that the issue is not between stems with content and stems without content. There is nothing contentless about the stems in the ISB. The difference between the Forer, Stein, and Sacks tests is that the authors of the more structured tests have explicitly prescribed the content areas for which they wish to elicit information. As for the unstructured tests, their stems are likely to have less obvious content structure, but to assume that there is no structure would require that every stem would have an equal probability of eliciting material in any given area. There is no experimental evidence demonstrating the existence of such stems, and it is unlikely that such stems could be constructed.

In the absence of evidence that structure facilitates assessment, the decision as to which approach to use will probably be answered by preference and purpose. As the aims of Rotter's test and Forer's test are quite different, it is possible that each has adopted the approach most valid for his purpose. The ISB was designed to be a group screening device that would provide a summary score of general psychological adjustment. Forer was more concerned with devising an aid to clinical personality analysis and description.

Dole and Fletcher (1955) present the most specific principles as to the effects of stem structure on sentence completion responses reported in the literature. The principles presented by Dole and Fletcher are based on an analysis of 500 protocols of the *Dole Vocational Sentence Completion Blank* (DVSCB) (Dole, 1958). Though, the authors' specificity is impressive, the principles presented are largely grammatical ones: e.g. "When the stem is a coordinate clause, the completion is usually a subordinate clause" (Dole and Fletcher, 1955, p. 107). Similar precision involving principles of a somewhat more dynamic nature are to be hoped for.

Trites (1955, 1956) found that structured unambiguous stems tend to elicit responses which are unambiguous. Peck and McGuire (1959) similarly found that well defined sentence stems yield less ambiguous data then relatively unstructured stems. King (1958) used a sentence completion form developed for his study to investigate sexual identification in a group of college males. He found that the responses which indicated "sexual confusion" were normatively tied to specific stems, and he concluded that the responses were, at least in part, a function of the stimulus properties of the specific stems. Rozynko (1959) correlated the rated social desirability of sentence completion responses obtained from 50 psychiatric patients. He found that "the social desirability of the sentence stem performs the function of establishing the direction of the response. A socially desirable stem tends to evoke a socially desirable response and *vice versa*" (Rozynko, 1959, p. 280).

Based on the available evidence there seems little doubt that the *content* of a response can be controlled to a considerable degree by the structure of the stem. "My mother . . ." leads obviously to more predictable response content than the stem "My . . .". The question is, what is the effect on the *significance* of the content as the structure of the stem increases. It is possible that increasing stem structure provides the tester with greater control over less significant material. Advocates of structured stems have tended to stress the advantages of content control. Advocates of unstructured stems have tended to stress the advantages of honest responding, which is presumed to be facilitated by relatively unstructured stems. Research is needed which will investigate the relationship of content control and response significance to varying degrees of stem structure.

Person reference

Two of the sentence stem properties that have generated most interest have been the person of the pronouns used and the effects related to variations in the personal reference of the stem. Logically consistent with the projection hypothesis is the assumption that a subject is more likely to reveal himself when talking about another person, and more likely to manifest defensive behavior when talking about himself. Many workers have accepted this assumption and have cast their stems in the third person. Here too, however, agreement is far from complete.

Rotter and Rafferty (1950) and Sacks and Levy (1950) use stems that are neutral or cast in the first person. Forer (1950) and Stein (1947) use stems cast in both the first and third person. Stein, interestingly, refers to first person as "personal" and third person stems as "projective." Forer believes that third person stems supplement first person stems in eliciting material that would be too threatening in response to the more charged first person construction. Holsopple and Miale (1954) use two first person stems; the rest of their list of 73 stems is either in the third person or neutral.

Trites *et al.* (1953) employed a variation not so easily categorized. Their sentence completion form was intended for use as a screening device with Air Force flying personnel. The cadets taking the test were shown a large sketch of an aviation cadet and instructed to complete the sentences "by writing what the cadet in the picture is saying" (Trites *et al.*, 1953,

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p. 7). Once again, though the purposes and aims of the test constructors are essentially the same, the procedures used to achieve the goal vary in almost all possible ways. Given the fact that this variability is not occurring among grossly different techniques, but rather within the limits of a single method, the variability is remarkable. It is hard to imagine a sound scientific model that would legitimatize all these approaches.

There has fortunately been a fair amount of work investigating the effects of person reference. The first and most important study dealing with this problem is one by Sacks (1949). Sacks developed two forms of a 60 stem sentence completion which were identical except that one form had stems that were all cast in the first person, whereas in the other form the stems were in the third person. Both forms were given to 100 neuro-psychiatric patients. Three psychologists rated the subjects for disturbance on the basis of the sentence completions and the psychiatrists treating the patients rated them for disturbance on the basis of clinical impressions.

The results of the study clearly indicated that the first person form manifested greater agreement with the psychiatric ratings than did the third person form. An additional finding was that six of the seven psychologists who took part in the study preferred the first person form for clinical use.

Sacks' study is an interesting and important one. Nonetheless, questions might be raised about the criterion used to evaluate the two sentence completion forms. It might be suggested that the psychiatrists in their ratings were responding to the more peripheral aspects of personality; that they were in fact responding mainly and merely to what the applicants chose to tell them. If this were so, and if it is further assumed that first person stems lend themselves to greater conscious control, Sacks' findings would assume a quite different significance. The congruance of the ratings based on the first person form with the psychiatric ratings would only demonstrate an equal lack of profundity. The lack of agreement between ratings based on the third person form with the psychiatric ratings would be consistent with the assumption that such a form taps the projective core of personality.

There is no wish to defend this highly speculative argument, but rather to merely present it. There is no direct empirical support for such a position, but a study by Morton (1949) is interesting and suggestive. Morton found that the ISB correlated .40 with the Mooney Problem Check List. This check list (Mooney and Gordon, 1950) consists of a number of statements, each of which refers to a specific problem. The subject is asked to check the problems which concerns him. As is obvious, the information generated by the check list is limited by the subject's willingness to reveal the information. The significant correlation of the ISB (a first person form) with such an instrument raises questions about the degree of conscious control the subject has and uses in responses to the ISB and other tests of this kind. It would be of some interest to know the correlation of a third person form of the ISB with the Mooney.

Arnold and Walter (1957) corroborate Sacks' finding that the person reference of the sentence stem is an important determinant of the response. They used the ISB as a self-reference form and a variation of the ISB as an other-reference form. They gave these forms to 120 female college students and found that the two forms correlated r=.55. The authors concluded that first and third person forms are not interchangeable.

Cromwell and Lundy (1954) do, however, support Sacks' contention that first person stems are superior to third person stems. Thirty-nine clinical psychologists made personality inferences about 60 VA neuropsychiatric patients on the basis of data obtained from a sentence completion form designed for the study. The author had the clinicians make specific hypotheses about the subjects and additionally asked the clinicians to indicate the specific sentences which had contributed to their evaluations. By this method the authors were able to assess the differential productivity of the stems, and they found that first person stems were clinically more productive than third person stems. No attempt, it should be noted, was made to validate the clinical inferences.

In a study by Forer and Tolman (1952) it was found that clinicians asked to make judgments about the potential clinical value of each stem in the Forer Structure Sentence Completion Test showed no preference for either first or third person constructions. Though these results are not consistent with the findings of Cromwell and Lundy, it should be noted that the clinicians made their judgments using a blank form. It is entirely possible that had the clinicians seen what the stems could "do," they would have, as in the study by Cromwell and Lundy, shown a similar preference for first person stems.

A study by Hanfmann and Getzels (1953) offers some support for the use of third person stems. Using third person stems, the authors tested a group of white and Negro high school girls with a specially constructed sentence completion form. A special procedure termed by the authors, the *Self-Reference Technique,* was used. This technique consisted of reviewing each of the responses with the subject and asking her whether or not the responses to the test were true of herself. Hanfmann and Getzels found that the subjects identified 70% of the responses as personally relevant. On the basis of these data, the authors suggest that third person stems elicit self-revelatory responses, the bulk of which tap a level of personality organization fairly close to consciousness. This study did not provide a direct comparison of the efficacy of first person versus third person stems. Consequently, these findings are, at best, suggestive.

In summary, there is considerable variability in the treatment of the stem relative to the person of reference. This variability seems to be related to theoretical assumptions that are largely untested, unstated, or both. What empirical evidence there is does seem to favor the first person construction of sentence stems. The evidence is, however, far from being definitive.

TREATMENT OF THE RESPONSE

There are a variety of ways of treating sentence completion responses reported in the literature, and several authors use more than one method of analysis. Basically, however, responses are either subjected to a) formal analysis, or b) content analysis, and content analysis methods may be further classified as semi-objective or impressionistic.

Formal analysis refers to the assessment of the non-meaningful properties of the sentence completion response. Benton, Windle, and Erdice (1957) classify some of the formal analyses that have been reported:

(a) Length of completion (Carter, 1947; Wilson, 1949).

(b) Use of personal pronouns (White, 1949).

(c) Time for reaction and for completion (Carter, 1947; Meltzoff, 1951; White, 1949).

(d) Absolute and relative frequencies of parts of speech, such as verb/adjective ratio (Ellsworth, 1951; Mann, 1941).

(e) Range of words used in relation to number of words used (Mann, 1941).

(f) Grammatical errors, nonsensical responses, or neologisms (Cameron and Magaret, 1949: White, 1949).

(g) First word used (Benton, Windle, and Erdice, 1952).

Guertin (1959), in a factor analytic

study of errors (e.g. misspelling) made on the ISB, found four factors which related to other clinically significant material. Wilson (1949), however, found that analyses of sentence completion data for misspellings, use of sentence fragments, response length and other formal characteristics did not discriminate groups of well adjusted and groups of maladjusted school children, and she suggests that a content analysis approach would be more discriminating. This recommendation, whatever its merits, does seem to be consonant with general practice. The treatment of sentence completion responses most typically involves the analysis of content.

Content analysis, however, is anything but a monolithic procedure. Approaches to the content analysis of sentence completion responses have been many and varied, but they have tended to polarize on a dimension of objectivity. Many authors have used highly subjective impressionistic methods. These methods have had historical priority in the development of the sentence completion and they continue to be widely endorsed.

In contrast, there have been a number of attempts to develop objective scoring procedures for the analysis of content. It should be understood, however, that even the most objective methods of scoring sentence completion responses involve a high degree of subjectivity. Free-response tests defy clerical scoring, and though there have been variants of the sentence completion method that lent themselves to greater objectivity, these have typically involved the imposition of response limits (Grigg and Kelley, 1960; Izard, Rosenberg, Bair, and Maag, 1953; Shay, 1950). It is doubtful, as Benton, Windle, and Erdice (1957) point out, that these variants are comparable with the traditional free-response forms.

Impressionistic Methods

Holsopple and Miale (1954) are probably, of all the sentence completion test constructors, the ones who are most committed to a clinically impressionistic method of coping with sentence completion responses. They maintain:

> This desire to achieve a scoring system which would provide for a more "objective" handling of the data sounds like a reasonable desire, but we believe that an effort in this direction at the present time would be premature. . . For the time being, however, we believe that more and better material can be acquired by a process of interpretation sentence by sentence until an acceptable global description is achieved (Holsopple and Miale, 1954, p. 6).

In order that the reader might gain a truer understanding of the clinical interpretation of the sentence completion, Holsopple and Miale present their clinical interpretation of a sample protocol, taken response by response. Toward this same end, the interpretation of the response "they are right" given to stem 1 *Children are usually certain that . . .* is presented in full:

> It did not occur to the subject to say that children are usually certain that they are loved or that they can have their own way. On the basis of our observation that adults here often ascribe certainty to children in areas of their own more important uncertainties, the question raised at the outset is 'How right am I?' The implication is that being right is important, and the subject has some doubts about his judgment (Holsopple and Miale, 1954, p. 45).

Stein (1947) similarly regards the sentence completion as a method of generating useful data to which the clinician may respond interpretively. The validity of the clinician's interpretations are presumably correlated with his experience, sensitivity and general clinical expertise. Sacks and Levy (1950) also believe that a nonquantitative or clinical approach is called for. Such an approach has greater flexibility which they believe is required, considering our primitive understanding of human personality. Forer (1960) rejects the quantitative scoring systems of Rotter *et al.*, (1949) and Rohde (1957) as having limited clinical utility. Elsewhere, (Forer, 1960a) in discussing objective quantitative scoring systems for the sentence completion, Forer says:

> While such neatness facilitates validation, the evidence in the research literature is that the sheer occurrence of magnitudes of drives or traits has little predictive utility. Particularly does this appear to be the case because such labeling or quantification of needs provides no evidence of the likelihood or conditions or forms of expression of these needs. Rather a growing focus in description of the personality deals with the enduring organizing aspects, often conceptualized as the ego or the self (Forer, 1960a, p. 215).

There is meager empirical support for the impressionistic approach to content analysis. Dean (1957) used the ISB in combination with other tests to assess the adjustment of blind subjects. Rotter's quantitative scoring system was unable to discriminate well adjusted subjects from poorly adjusted subjects. Dean concluded that a qualitative approach would be more useful. Unfortunately, he did not put his faith in a qualitative approach to an empirical test. Stein (1947), Holsopple and Miale (1954), and Forer (1960) all offer clinical, non-quantitative data to support impressionistic analysis. Beyond this, there is little firm experimental evidence to support the impressionistic approach to content analysis.

Further, even Sacks, Stein, and Forer are apparently not entirely willing to submit their tests to completely free impressionistic analysis. These authors arrange their stems, as previously noted, in specified content categories and they direct users of their tests to organize their clinical efforts within these categories. And though it is certainly true that these authors permit clinicians considerable latitude in the interpretation of the responses, they do offer relatively pointed interpretive guides.

Sacks, in fact, uses a rating procedure similar to the one devised by Rotter and Willerman (1947). He clusters his sentence stems within each of his categories and rates the subject on a four point scale for degree of disturbance in each of the fifteen clinical areas. These ratings are achieved through clinical acumen and no attempt is made to treat the ratings statistically. Sacks' method seems to be but a step away, albeit a good size step, from being an objective, quantitative method of content analysis. There is also an attempt, reported in the literature, to apply Rotter and Willerman's rating procedures to Forer's stems. Karen (1961) reports reliability coefficients ranging from .90 to .96 for this method. Unfortunately, this work was based on only eight items, and no attempt was made to validate the procedure.

Stein eschews the use of ratings, but he does cluster his stems, and he presents seven principles to sensitize clinicians to critical responses. Forer, too, clusters his stems and presents the potential user of his test with a number of interpretive tips. These attempts to make the bases for clinical impression more public and consensual, coming as they do from people committed and sympathetic to the clinical approach, seem to emphasize the ultimate desirability of the clinical cookbook (Meehl, 1956). The issue is, however, as it has always been, the feasibility and not the desirability of a cookbook approach. Is an acturial approach theoretically possible? And if it is theoretically possible, are we, at our present level of sophistication, ready for it?

These questions will not be answered here, but ready or not there is considerable evidence in the general clinical literature and in the sentence completion literature specifically, that clinical impressionistic methods involve a too full measure of risk and uncertainty.

In a study by Masling (1957), eight clinical psychology graduate students were required to give and interpret

ISB's obtained from female undergraduates. Unknown to the graduate students, the testees were accomplices who had been instructed to assume either a "warm" or "cold" role toward the examiner according to a predetermined schedule. Masling defines the roles as follows:

> In the warm role the accomplice was told to act friendly and interested in both the testing situation and the examiner, the goal being to make him feel comfortable and accepted. In her cold role she was to act in a formal, disinterested way and her object was to make him feel awkward and incompetent" (Masling, 1957, p. 378).

Each examiner saw one "cold" and one "warm" testee. The protocols, though different in content, had been prepared so that they were equal in rated adjustment. The examiner-subjects were asked to write clinical interpretive reports for the two protocols. After all references to the examiner-testee relationships had been deleted, the reports were analyzed for number of positive and negative statements made about the testee. The ratings were done blind, and the results were as predicted in that "warm" subjects were perceived more positively than "cold" subjects.

In evaluating the significance of these findings it must be remembered that the examiners were relatively inexperienced graduate students. Nonetheless, the study is intriguing and the results provocative. The sentence completion method may be even more of a projective device than its adherents had ever intended. It is, moreover, unfortunate that Masling did not also have the examiner rate the ISB's using Rotter and Rafferty's procedure which is alleged to involve a high degree of objectivity. It would have been of considerable interest to know if "objective" scoring procedures are similarly sensitive to the effects of "warm" and "cold" interactions.

A study by Horowitz (1962) attempted to assess the accuracy of clinical judgments based on projective test data. The clinicians were asked to predict to Q sort descriptions made by patients' psychotherapists. *Michigan Sentence Completion Test* protocols were part of the projective data available to the clinicians. The major finding was that the clinical judgments were no more accurate than base rate predictions.

In a study by Luft (1950) experienced clinicians and physical scientists were asked to identify patients' true responses to the OSS sentence completion test from among lists of five alternatives. The judges were presented with tape recordings of the patients' diagnostic interviews as a basis for their identifications. The clinicians and non-clinicians were equally unable to predict the sentence completion responses.

There have been a number of studies which have questioned the efficacy of the impressionistic approach.[4] A number of studies by Fiske and his associates, however, suggest that the problem may not be with the clinical method *per se,* but rather with the instability of the data. Fiske and Van Buskirk (1959) had clinicians do a Q sort of 30 need variables using sentence completion protocols. Three protocols obtained at different points in time were obtained from each of eight subjects. This procedure permitted Fiske and Van Buskirk to answer the question: "Are the differences between the interpretations of protocols from the same person less than the differences between interpretations of protocols of different persons?" (Fiske and Van Buskirk, 1959, p. 177). The authors found that "in 25% of the comparisons, the agreement was higher with protocols for different subjects than with other protocols from the same subject" (Fiske and Van Buskirk, 1959, p. 180).

This study developed from a more general interest in the problem of intra-individual response variability, reviewed by Fiske and Rice (1955).

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[4] For a broader discussion of this issue, the reader is advised to consult Meehl (1954), Holt (1958), and Schafer (1949).

In other studies (Osterweil and Fiske, 1956; Fiske, 1957) it was found that sentence completion responses showed great variability on repeat-testing. Of special significance was the finding by Osterweil and Fiske that those responses which were most individuating and useful to the clinician were the ones which were least stable over time.

Stephens (1960) reported that "the stems with lowest retest reliability were those which were rated by judges as being most likely to be sensitive to change in adjustment" (Stephens, 1960, p. 333). Such a finding tends to support the results obtained by Osterweil and Fiske, but in at least one important sense it alters the interpretation of Osterweil and Fiske's data. If Stephens' data are valid, then the instability of the sentence stems is a function of *true* personality change rather than random variability. Further, these results question the legitimacy of traditional notions of test-retest reliability as applied to a personality test like the sentence completion. This old and thorny problem has been discussed at length by Macfarlane and Tuddenham (1951) and others. The general conclusion seems to be that the projective test user must find other non-temporal methods of coping with the problem of reliabilty.

Nonetheless, however achieved, there does appear to be considerable intra-individual response variability; a fact which presents the actuary and the clinician alike with a problem of considerable magnitude.

Semi-Objective Methods

The validity and power of a sentence completion test analyzed impressionistically can be no greater than the skill of the clinician using the instrument. In general practice the validity of the test and the astuteness of the tester are non-independent. As methods of analysis become more objective, the analytic role of the clinician decreases. Whether this relationship is viewed with alarm or delight, the relationship as such is incontestable.

The most rigorous and objective system of scoring the content of sentence completion responses has been presented by Rotter and Rafferty (1950). Each completion is scored on a 7 point scale from 0 to 6 for degree of conflict (C). There are three classes of C responses, three classes of positive (P) responses, and a class of neutral (N) responses. The scoring of the responses is guided by examples provided in the test manual with separate scoring manuals provided for males and females. The ISB user compares the response to the examples provided in the appropriate manual, and assigns the rating given to the example which is most similar to the one he has obtained. The list of examples contained in the manual is not intended to be exhaustive, and the authors provide general scoring principles to be used in combination with the specific examples.

As an illustration, item 10, "People . . ." is presented with the examples of scoring weights given in the male manual:

(6) C3 disturb me; worry me; never understand me; frighten me; have it in for me; are hateful

(5) C2 annoy me (strong criticism of people in general — e.g., destroy what they build; have a deplorable sense of value); (indication of unfavorable attitude toward subject — e.g., think that I am a snob)

(4) C1 can be got along with if you try; do not cooperate enough; run around in circles most of the time

(3) N are sometimes good, sometimes bad; who are truthful will be rewarded; work to achieve something; inherit the world; are interesting to study; (stereotypes — e.g., are funny; are crazy)

(2) P1 are interesting; are fascinating; are nice

(1) P2 are good; are basically good; I like

(0) P3 are fun; I like them all; are wonderful; are the salt of the earth; touch wet paint in spite of wet paint signs (Rotter and Rafferty, 1950, p. 58)

After the responses are rated individually, the weights are totaled to produce an over-all "adjustment" score. The higher the score, the greater the degree of maladjustment.

In a validation study by Rotter, Rafferty and Schachtitz (1949), it was found that a cutting score of 135 correctly identified 68% of maladjusted female college students, 69% of maladjusted male students, 80% of well-adjusted females and 89% of well- adjusted males. In light of the simplicity of the scoring system and the relative homogeneity of the population, these results are impressive. A cross-validation study by Churchill and Crandall (1955) yielded results in essential agreement with the original findings, and the authors suggest that the ISB norms may be applicable in a variety of college settings. Arnold and Walter (1957), however, found that for another college population the cutting score of 135 seemed to be pegged too low.

If the "objectivity" of an objective test is simply defined in terms of its ability to be scored with perfect agreement by a number of judges, then based on a number of empirical studies, it is clear that the ISB *approaches* being an objective test. Rotter, Rafferty and Schachtitz (1949) report interscorer reliabilities of .91 and .96 for male and female protocols respectively. Using the high school form of the ISB, Rotter, Rafferty and Lotsof (1954) report interscorer reliabilities of .96 and .97 for the boys' and girls' manuals. Studies by independent researchers report interscorer reliabilities for the ISB that are comparably high. Jessor and Hess (1958) report an interscorer reliability of .97; Churchill and Crandall (1955) for a sample of female subjects report interscorer reliabilities ranging from .94 to .98; Bieri, Blacharsky and Reid (1955) found interscorer reliability to be .95; Arnold and Walter (1957) found interscorer reliability to be .97; Chance (1958) obtained an interscorer reliability of .89; and Cass (1952) reports an interscorer reliability of .90.

The success achieved by Rotter and his associates in developing reliable scoring methods has encouraged other attempts at objectifying the content analysis of sentence stems through the use of manuals of scoring examples. Sechrest and Hemphill (1954) devised a manual of scoring examples to be used specifically with Air Force personnel which proved to be sensitive to motivational variables involved in the assumption of combat responsibility.

Trites *et al.* (1953) report the development of a scoring manual based on the protocols of 1,038 flight cadets. The manual contained principles and examples that permitted the assignation of a response to one of thirteen categories. Each category had two properties: a) it referred to a particular attitude, and b) it had either a positive or a negative tone. An example of one of Trites *et al.*'s categories (Category L, *Sexuality Attitudes*) as defined in their manual is, "Expresses positive, mature, heterosexual attitude toward dating, courtships, love, marriage, sexual and marital relations" (Trites *et al.*, 1953, p. 21). Using a scoring manual to assign responses to such categories, judges achieved interscorer reliabilities ranging from .80 to .94. These reliabilities are quite respectable and are comparable to the reliabilities reported by Rotter and Rafferty (1950).

Rychlak, Mussen and Bennett (1957) believe that objective methods of scoring sentence completion responses are more appropriate for research purposes than more impressionistic methods. Accordingly, in a study using a sentence completion test to measure social adjustment in native Japanese students enrolled at an American university, the authors attempted to construct a scoring manual that would facilitate the objective scoring of the sentence completions.

They made hypotheses about ten personality variables presumed to be related to social adjustment. Their scoring manual defined each of these variables, gave examples of responses that related to them, predicted the relationship of each variable to social adjustment, and presented the theoretical rationale underlying each prediction. Each response was scored on all appropriate variables, and the score for each variable was the number of responses which had been relevant to the particular variable. The percentage of interscorer agreement for this scoring procedure was .80.

In their study, Rychlak *et al.* correlated the sentence completion adjustment scores on each of the ten personality variables with social adjustment ratings based on interview data. Six of the ten correlations were significant at $p < .05$ or better. The authors concluded that the sentence completion test scored by their procedures "proved to be a remarkably efficient predictor of the quality of the individual's social relationships" (Rychlak *et al.*, 1957, p. 28).

Perhaps the most elaborate and ambitous scoring system is reported by Rohde (1946, 1957). Responses to each one of her 65 sentence stems are analyzed in terms of Murray's theory of needs and presses. She employs 38 categories of needs, inner integrates, inner states, and general traits, each of these variables being scored for strength. The criteria for assessing the strength of a variable are frequency and intensity. "Frequency is obtained by counting the number of occurrences of the variable. Intensity is estimated on a 1 to 3 scale: (1) low, (2) medium, (3) high. The determinant is the vividness and potency with which the variable is expressed. For example, a suggestion of annoyance is rated 1, and outright expression of dislike is rated 2, while intense hatred is rated 3 in reference to *n* Rejection" (Rohde, 1957, p. 63).

Rohde (1946) conducted a validation study of her test using the scoring procedures described above. One hundred high school students, 50 boys and 50 girls, were given the *Rohde-Hildreth Sentence Completion Technique*, and each of 33 variables abstracted from the test was rated on a ten point scale. On the basis of interviews with teachers and school supervisors, another set of ratings for the subjects was obtained to serve as the criterion measure for the validation of the test. The correlations between these two sets of ratings were impressively high, .79 for the girls and .82 for the boys. However, as both Rotter (1951) and Zimmer (1956) note, the experimenter was involved in the rating of the criterion measure as well as the scoring of the test responses. The possibility of bias confounding the data is clear and unfortunate.

In studies by Jenkins and Blodgett (1960) and Jenkins (1961), attempts were made to quantify the *changes* in sentence completion responses on repeat testing. Using the Miale-Holsopple test, the authors paired responses given to the same stems at two different times. Judges were asked to compare the second response to the first and rate the response for improvement (+) or worsening (—). The pluses and minuses were summed to give an over-all improvement score. These scores were used to predict or postdict improvement for a group of juvenile delinquents (Jenkins and Blodgett, 1960) and for a group of schizophrenics (Jenkins, 1961). These scoring methods did have some success in predicting improvement and are considered by the authors to have considerable promise.

The scoring procedures used by Jenkins and Blodgett and Rotter are characterized not only by features of objectivity and quantification, but by emphasis on a single score whether it be "improvement" (Jenkins and Blodgett) or "adjustment" (Rotter). This approach is quite different in procedure and purpose from other semi-objective methods, such as the one used by Trites *et al.* and Rychlak *et al.* who attempted to assess a number of variables.

Scoring all responses from a given sentence completion test for a single variable rather than for a number of variables has the obvious effect of increasing the test's length and reliability. The increasing monotonic relationship between test length and reliability is well known and accepted (Guilford, 1954). In a study by Mishler (1958) there is empirical support, specific to the sentence completion test, for the value of increasing the number of sentence stems in order to decrease instability.

Zimmer (1956) shares this view: "The attempt to derive only a single variable, rather than several from a test record may increase the likelihood that an adequate number of responses relevant to all aspects of the variable can be obtained, and may thereby contribute to the stability and accuracy of prediction" (Zimmer, 1956, p. 67). In his review of sentence completion validation studies, he concludes that an objective scoring system is a more promising method than a global impressionistic evaluation. Most promising of all, he believes, are approaches that combine objective scoring systems with single variable analysis.

Such an approach would seem to be the most generally useful method of treating sentence completion responses for research purposes. A single variable orientation is likely to maximize data relevance, and objectification facilitates replication, which, is, after all, the corrective that distinguishes the scientific enterprise. Is the single variable-objective scoring system treatment of responses an equally valuable method for general clinical purposes?

Merely raising the question tends to furnish the answer. Clinical purposes are typically different from research purposes. Data relevance and procedural replicability are, of course, important to the clinician. His purpose in using projective techniques for personality assessment, however, reside in the power of these tests to generate hypotheses which will help him to describe and understand the particular patient with whom he is confronted A single summary score of psychological adjustment, however sophisticated psychometrically, is likely to be regarded by the clinician as limited at best.

Problems in the Assessment of Validity

In Table I, some 50 studies bearing on the validity of the sentence completion method are summarized. Even a cursory inspection of the table suggests that there can be no unequivocal claim for the validity of the sentence completion method. Many tests, scored in many ways, using a variety of criteria, applied to a variety of populations, have yielded a variety of data.

Standard and Custom Tests

Research with 26 different sentence completion forms is reported in Table I. Of these 26 forms, 11 have been presented by their authors as standard forms, the others, referred to as *custom* tests, were by and large designed for the study of specific variables. Of the 50 studies summarized, the ISB has 15 citations with the next most cited test having four. No claim is made that this table is a perfect reflection within any of its categories of the nature and amount of work done with the sentence completion method. Nonetheless, whatever the true proportions, it is clear that the ISB has received more research attention than any other standard sentence completion form.

It is entirely possible, however, that sentence completion forms designed

TABLE I. *A Summary of 50 Representative Sentence Completion Validity Studies*

Test	E	*Method of Analysis*	N	*Ss*	*Criterion*	*Results*
Forer	Meyer & Tolman (1955)	Rated for attitudes toward parental figures	20	Therapy patients	TAT & interview data	$r =$ N.S. (value of r not reported)
Forer	Carr (1956)	Rated for 4 affect categories	50	Male patients in a mental hygiene clinic	Rorschach variables	χ^2: 13 significant relationships at $p < .10$ or better
Forer	Stone & Dellis (1960)	Rated on Menninger Health-Sickness Rating Scale for amount of psychopathology	20	Schizophrenics	WAIS, TAT, Rorschach, DAP	Difference in amount of pathology between SCT & Rorschach; SCT & DAP $p < .01$
IBS[1]	Rotter & Willerman (1947)	Ratings on a 7 point scale of conflict using a scoring manual of examples	200	AAF convalescent hospital patients	Evaluation of severity of disturbance based on tests, case history, & interview data	Tri-serial $r = .61$
		Global clinical evaluation of disturbance	148		Presence or absence of psychiatric complaints	bis $r = .41$ & $.39$
ISB	Morton (1949)	Rotter & Willerman's procedures	28	College students	Adjustment ratings Mooney Problem Check List Adjustment, therapy — non-therapy	$r = .53$ $r = .40$ bis. $r = .50$
ISB	Rotter, *et al.* (1949)	Rotter & Willerman's procedures	82f[3] 214m	College students	Adjustment ratings	bis. $r = .64$, $p < .01$ bis. $r = .77$, $p < .01$
ISB	Barry (1950)	Rotter & Willerman's procedures	38	College students in counselling	Adjustment ratings	bis. $r = .67$, $p < .01$
ISB	Rotter & Rafferty (1950)	Rotter & Willerman's procedures	299	College freshmen	Ohio State Psychological Examination	$r = .11$
ISB[2]	Rotter, *et al.* (1954)	Rotter & Willerman's procedures	48f 45m 70f 68m	High school students	Adjustment ratings Adjustment ratings Sociometric choice Sociometric choice	$r = .37$, $p < .05$ $r = .20$, N.S. $r = .32$, $p < .05$ $r = .20$, N.S.
ISB	Sechrest & Hemphill (1954)	Rated on 16 scales relevant to air crew adjustment	340	Aircrew members	Assumption of combat responsibility	t test: 4 of 16 scales sig. at $p < .05$ or better
ISB	Bieri, *et al.* (1955)	Rotter & Willerman's procedures	40	College students	Taylor MAS Accuracy of prediction of other *S*'s MAS	$r = .46$, $p < .01$ $r = .19$, N.S.

[1] Preliminary form.
[2] High school form.
[3] Where results are broken down by sex, N is reported by sex.

TABLE I. A Summary of 50 Representative Sentence Completion Validity Studies (continued)

Test	E	Method of Analysis	N	Ss	Criterion	Results
ISB	Churchill & Crandall (1955)	Rotter & Willerman's procedures	188f	College students	Application for psychol. couns.	bis. $r = .42$, $p < .01$
			156m	College students	Application for psychol. couns.	bis. $r = .37$, $p < .01$
			44	Mothers	Adjustment ratings	$r = .49$, $p < .01$
ISB	Berger & Sutker (1956)	Rotter & Willerman's procedures	199m	College students	Academic achievement	$r = .01$, N.S.
			154f		Academic achievement	$r = .01$, N.S.
ISB	Dean (1957)	Rotter & Willerman's procedures	54	Blind Ss	Adjustment ratings	$r = -.16$, N.S.
ISB	Chance (1958)	Rotter & Willerman's procedures	52	College students	Prediction of other S's EPPS	$r = -.26$, $< .10$
ISB	Fitzgerald (1958)	Rated for n dependency using a scoring manual of examples	60	College students	Sociometric ratings of dependency	$r = .25$, $p < .05$
					Interview ratings of dependency	$r = .28$, $p < .05$
ISB	Jessor & Hess (1958)	Rotter & Willerman's procedures	41	College students	Rotter Level of Aspiration Board	White's test $p < .10$
ISB	Denenberg (1960)	Rotter & Willerman's procedures	40	College students	Kinesthetic maze	$r = .39$
			21			tris. $r = .46$
Miale-Holsopple	Jenkins & Blodgett (1960)	Rated re-test improvement	92	Delinquent boys	Recidivism	χ^2 for 3 judges: $p < .005$, $p < .01$, $p < .025$
Miale-Holsopple	Jenkins (1961)	Schizophrenics	30	Schizophrenics	Improvement as measured by Lorr Multidimensional Scale	t test = $p < .05$
Michigan	Kelly & Fiske (1950)	"Blind" prediction of criteria based on global ratings	78	Clinical psychol. grad. students in VA training	Success in clinical psychology evaluated by clinical staff members	4 of 8 r's: $p < .05$ or better
Michigan	Hiler (1959)	Intensity ratings on 25 pers. variables	70	VA psychotherapy patients	Continuation in psychotherapy versus termination	71% agreement with criterion
		Clinical impression to predict criterion	95			68% agreement with criterion
OSS	Hardy (1948)	Scored for dominance, submission	25	Grad. students in course in non-directive counsel.	Non-directiveness of counseling statements	Rho = .26, N.S.
OSS	Hadley & Kennedy (1949)	Modified Rotter & Willerman procedures (3 point scale)	157	College students	High versus low grade point averages	Critical ratio $p < .04$; of 12 $\bar{X}$ ratings 6 $p < .05$ or better

TABLE I. *A Summary of 50 Representative Sentence Completion Validity Studies (continued)*

Test	*E*	*Method of Analysis*	*N*	*Ss*	*Criterion*	*Results*
Peck	Peck & McGuire (1959)	*Re-test changes rated positive/ negative*	*69*	*College students*	Lefkowitz Rigivity Scale	r = .11, N.S.
					Worchel Self-Activities Index	r = —.02, N.S., .67 p<.01
					McGuire Q-Check	r = .00, .06, .19, .03 (all N.S.)
Rohde	Rohde (1946)	Ratings based on Murray's need system	50m	High school students	Combined ratings of teacher judgments & interview data relative to Murray's need system	$\bar{r}$ = .82, p<.01
			50f			$\bar{r}$ = .79, p<.01
SAM	Trites, *et al.* (1953)	Scoring manual used to rate 13 personality variables	100	Flight cadets	Success vs. failure in flight cadet training	bis. r = .32, p<.005
			413			bis. r = .21, p<.001
			539			bis. r = .13, p<.001
			639			bis. r = .18, p<.001
SSCT	Sacks (1949)	Impressionistic ratings on 3 point scale for disturbance	100	VA neuropsychiatric outpatients	Psychiatric adjustment ratings	Agree. on 8/15 variables, p<.001 (1st person form); agree. on 3/15 variables, p<.001 (3rd pers. form)
SSCT	Sacks & Levy (1950)	Ratings for disturbance	100	VA neuropsychiatric outpatients	Psychiatric ratings of disturbance	r = .48 to .57
		Interpretative summaries	50		Agreement with clinical findings	77% agreement
SSCT	McGreevey (1962)	Pooled rankings on 4 personality traits using TAT & SSCT	40	Students nurses	Ego-threatened vs. non-ego-threatened	r's for non-ego threat. group N.S.; 5/8 r's for ego-threat. group p<.05 or better
Stein	Locke (1957)	3 point scale of disturbance	100	Naval Personnel	Imprisonment vs. non-imprisonment	6/12 *t* tests p<.05
Stein	Howard (1962)	Rank ordering of 10 of Murray's needs	10	VA psychiatric patients	Rorschach & TAT	$\overline{X}$ interjudge agreement between tests, r = .05, N.S.
Stotsky & Weinberg	Stotsky & Weinberg (1956)	Rated for positive or negative tone relative to 9 ego-strength dimensions	80	Psychiatric patients	Work performance ratings	X^2 p<.05 or better on 8/9 vars.
			80		Work progress ratings	X^2 p<.05 or better on 8/9 vars.

TABLE I. A Summary of 50 Representative Sentence Completion Validity Studies (continued)

Test	E	Method of Analysis	N	*Ss*	Criterion	Results
Stotsky & Weinberg	Stotsky (1957)	Rated on 9 ego-strength dimensions	32	Normals I	Subject characteristics	I & II differed ($p<.05$) on 2/9 vars.; I & III differed ($p<.05$) on 8/9 vars. (X^2)
		Positive treatment outcome	39	Schizophrenics II		
		Negative treatment outcome	39	Schizophrenics III		
Stotsky & Weinberg	Wolkon & Haefner (1961)	Stotsky & Weinberg procedures	48	Psychiatric patients	Behaviorally improved group vs. unimproved group	t test: on 6/8 variables $p<.10$ or better
Custom	Wilson (1949)	Rated for grammar, spelling, and other formal aspects	22	High school students	Maladjusted children vs. well-adjusted children	no significant relationships observed
Custom	Cameron & Margaret (1950)	Frequency of response "scatter"	45	College students	Card-sorting test Guilford Inventory Guilford-Martin Inventory	$r = .08$ to $.14$ (all N.S.) 2/10 r's $p<.05$ 1/10 r's $p<.05$
Custom	Rosenberg (1950)	Rated for attitudes toward parents	72	Psychoneurotic patients	Therapists' judgments of patients attitudes	58% agreement on attitudes toward father; 69% agreement on attitudes toward mother
Custom	Harlow (1951)	Scored for dominance-submission on a 4 point scale	40	Weight-lifters & non-weight lifters	Weight-lifters vs non-weight-lifters	7/11 t tests $p<.05$
Custom	Lazarus *et al.* (1951)	Rated for expression of hostility and sexuality	35	Psych. patients	Percept. acc. of hostile & sexual stimuli	$r = .45$, $p<.01$; $r = .55$, $p<.01$
			25	Repressors & Intellectualizers	Repressors vs. intellectualizers	t test $p<.05$
Custom	Cass (1952)	Rated for parent-child conflict using a scoring manual of examples	42	Well-adjusted & maladjusted children	Well-adjusted vs. maladjusted children	t test $p<.001$
Custom	Kimball (1952)	Rated for attitude toward father Rated for aggression	117	Prep school students	Academic under-achievement vs. normal achievement	Critical ratio $p<.05$ (father); Critical ratio $p<.01$ (aggression)
Custom	Dorris *et al.* (1954)	Rated for ego-threat, passivity and masculinity	21	College freshmen	High vs. low authoritarians	12/16 hypotheses supported at $p<.05$ or better (t test)
Custom	Zimmer (1955)	Prediction of criterion based on clinical impression	73	AAF crew members	Sociometric rankings on 8 personality variables	$r = .10, .10, .21$ (all N.S.)

TABLE I. *A Summary of 50 Representative Sentence Completion Validity Studies* (continued)

Test	*E*	*Method of Analysis*	*N*	*Ss*	*Criterion*	*Results*
Custom	Burwen *et al.* (1956)	Rated on 5 point scale of superior-subordinate cluster	312	Air Force Cadets	Test of leadership knowledge Superior-subordinate cluster Scale of alienation	$r = .27, p < .001$ $r = .32, p < .001$ $r = -.45, p < .001$
Custom	Walter & Jones (1956)	Ratings on a 4 point scale of positive and negative attitudes	33	Psychiatric patients	O.T. ratings of behavior	$r = .50, p < .01$
Custom	Rychlak *et al.* (1957)	Ratings of inclusion with 10 personality categories based on scoring manual	18	Japanese-born college students in USA	Social adjustment ratings based on interview data	6/10 r's $p < .05$ or better
Custom	Willingham (1958)	Rated for acceptance of environment	164	Naval Aviation Cadets	4 morale tests	$\bar{r}$ with 4 tests $= .27$
Custom	Ebner & Shaw (1960)	Rated for activity-passivity	48	Psychiatric patients & normal Ss	Psychiatric patients vs. normals	*t* test $p < .05$
Custom	Efron (1960)	Rated for suicide potential	92	Psychiatric patients	Expression vs. non-expression of suicidal thoughts	Correct identification $= 43\%$ & 30% (both N.S.)

for more general clinical purposes like the Forer, SSCT, Miale-Holsopple, and the Rohde are in wider clinical use than the research literature suggests. It is not entirely unlikely, though it would be unfortunate, that clinical instruments with least research support are most "used," and that instruments such as the ISB are most researched because they lend themselves to research purposes irrespective of pragmatic virtue.

One further note about the various completion forms. Many of the standard sentence completion tests available have their roots in work done during World War II (c.f. Holzberg, Teicher and Taylor, 1947; Hutt, 1945) and most of the others are also at least a decade old. It is not suggested here that new tests are best. Certainly, any test that could be of value ten years ago in the assessment of personality is very much up to date. It is interesting to note, however, what might be referred to as the sociology of test construction. Shortly after the War a spate of sentence completion tests were made available, but more recently other tests appear to have caught the creative fancy of people in the field.

A notable exception to this trend is provided by a sentence completion form constructed by Stotsky and Weinberg (1956). In follow-up studies by Stotsky (1957), Connors, Wolkon, Haefner, and Stotsky (1960), and Wolkon and Haefner (1961) the Stotsky-Weinberg Sentence Completion Test has appeared to be a sensitive and useful instrument for assessing ego-strength in psychiatric subjects.

Subjects

Captive groups have traditionally been the major source of subjects for psychological experimentation. So, too, has it been the case with sentence completion research. Three groups have been most used; college students, psychiatric patients, and armed forces personnel. The last-named group may indeed reflect the captivity of the psychologist as well as the subject. The danger in this restriction of subject populations is obvious. If we wish to know something about other people in the world, we are going to have to bring such specimens into our laboratories.

The problem of population restriction has been exacerbated in sentence completion research by the tendency for specific sentence completion forms to be used with specific populations. Of the sixteen studies cited in the summary table that used college students as subjects, eleven of them involved the ISB, though the ISB was used in less than a third of all the studies cited. (A chi square for independent samples, as outlined by Siegel, 1956, was computed, yielding a chi-square value of 711, d.f. $= 1$, p. $<.001$). This finding indicates that the ISB has been primarily a "college" test. Only in the Rotter and Willerman (1947) study was the ISB used with a psychiatric population. On the other hand, all three of the studies cited using the Forer, all three of the Stotsky-Weinberg studies, and two of the three studies cited using the SSCT, employed psychiatric populations. Whatever the reason for such narrow usage, it is undeniably the case that cross-validation and generalizability have been thereby inhibited.

Criteria

Often in the history of psychological testing, tests have been devised to replace inadequate assessment techniques only to be validated against these very same techniques. Though, these bootstrap operations have, on occasion, appeared to work, they can hardly be regarded as the method of preference. The establishment of appropriate validating criteria has often been regarded as an especially difficult problem for projective tests:

> Criteria can be obtained for overt, observable behavior. But that is not the forte of projective instruments. Their special attraction and most frequent use lies in the description of personality dynamics, which are mostly covert and inaccessible. How is one to establish criterion measures for such variables as confused sexual identification, inner emotional resources, or castration anxiety? At best, ways may be found by which these inner states can be inferred from observable or recordable behavior. The value of such behavior as criterion measures is qualified by the imperfect and sometimes undefinable relationship of the behavior to the inner states proper *(*Zimmer, 1956, p. 59).

This argument is both appealing and traditional, and as such needs to be examined closely. All behavior presumably is tied to inner states, and in this regard the behavior of most interest to the projectivist is not special. What tends to distinguish the projective test user is his concern for inner states *per se*. The achievement test user, by contrast, though he may recognize the desirability of knowing the correlative intra-psychic forces, is primarily concerned with behavior and the implications of one set of behaviors for another set of behaviors.

Covert personality dynamics either relate in some predictable and orderly fashion to an observable, behavioral referent, or they are indeed untestable. There is, fortunately, no good theoretical reason to suppose that personality dynamics are without behavioral referent. Certainly, a psychoanalytic position would suggest otherwise:

> Mental phenomena are to be regarded as the result of the interplay of forces pressing respectively toward and away from motility. The organism is in contact with the outside world at the beginning and at the end of its reaction processes, which start with the perception of stimuli and end with motor or glandular discharge. Freud (1927) looks at the mental apparatus as modeled after an organism floating in water. Its surface takes up stimuli, conducts them to the interior, whence reactive impulses surge to the surface (Fenichel, 1945, p. 15).

The problem then for the projective test user becomes one of deducing a theoretically logical behavioral referent or outcome for the inner state under investigation. The measurement of this behavioral referent constitutes the criterion against which the projective test may be validated. Such procedures demand of the experimenter that his conceptual tools be valid if he is to assess the validity of his psychometric instruments. Given the complexity of personality and the primitiveness of personality theory, the task is formidable. There have, however, been researchers who were equal to the task.

Lazarus, Eriksen and Fonda (1951) classified psychiatric patients according to their characteristic defense mechanisms. They isolated groups of intellectualizers and repressers, and they predicted that intellectualizers would express significantly more sex and hostility related responses on a specially devised sentence completion test than repressers. The data supported their predictions.

Harlow (1951) used a sentence completion test to test hypotheses derived from psychoanalytic theory concerning masculine inadequacy. Harlow speculated that weight lifting involves an excessive amount of narcissim and that weight-lifters suffer from feelings of masculine inadequacy, have failed to identify with an adequate male object, and are attempting to obscure their underlying feelings of dependency and masculine inadequacy by the development of a strong masculine physique. Harlow gave groups of weight-lifters and athletes who were not weight-lifters sentence completion tests, which were scored for dominance and submissiveness. The two groups differed on seven of eleven variables; all differences were statistically significant at the .05 level, and were in the predicted direction.

In Harlow's study, two groups known to differ on X (weight lifting) were tested to see if they also differed on Y (feelings of masculine adequacy). The X variable was the criterion for the test and the Y variable was the major focus of interest. This, basically, is the experimental form where the attempt is to go beyond simple empirical differences. Other research models are available. The experimenter might wish to determine whether his sentence completion test is useful in predicting academic success and failure. Two groups, a success group and a failure group, (X variable) could be tested and the relationship between the test scores and the known group difference determined. Such a procedure need not involve the additional step of attributing a more "basic" determining difference distinguishing the two groups. This latter form is essentially the design used by Sechrest and Hemphill (1954), Hiler (1959), Hadley and Kennedy (1949), and many others. In the former case the criterion is made to do double duty; it serves as a standard for test validation, and additionally, it indicates another psychological event or process, which is typically of greater interest to the researcher.

Which research tactic is to be preferred must obviously be answered in the context of research goals. Clearly, the use of criteria as indicants is demanded when "inner states" are to be assessed; the use of single-purpose criteria is probably in order where "practical" psychometric goals are to be achieved. Both approaches have their uses and both have inherent dangers; one, the danger of confusion and unjustified extrapolation, the other, the danger of sterility and triviality.

The choice of criteria is not only restricted by research purpose, but is restricted as well by differences in sentence completion test structure and scoring procedure. Scoring procedures that yield a single variable summary score, as does the ISB for example, have less plasticity and are likely to narrow relevant criteria more than a test like the Miale-Holsopple which is analyzed impressionistically. Which test and what criteria to use, is again a problem to be resolved by individual research interests. Where the interest is in validating a specific test, the researcher will look for appropriate criteria; where the interest is in a given psychological process, the researcher will look for the appropriate test.

Matching test with criteria is, however, a task that requires greater sophistication than has often been given to this problem. As Zimmer (1956) points out: "When test and criterion are formulated and organized within different conceptual frameworks, the categories into which their materials have been arranged may not correspond to each other. If this is the case, it will be difficult to obtain a reliable estimate of the association between test and criterion. Any existing association may be obscured by the organization of the categories" (p. 59).

The Utility of the Method

Having noted repeatedly the dangers involved in making generalizations about a method as variable as the sentence completion, it is nonetheless in order that some general assessment of the method's validity be attempted.

Inspection of Figure 1 reveals that the power of the method is clearly related to the area of investigation. Sentence completion methods have been relatively unsuccessful in a number of research areas. The method has, so far, been insensitive in the measurement of variables associated with social perception. The one reported correlation of a sentence completion test with a test of intelligence yielded a non-significant correlation of .11. The method has been used to predict the achievement of a variety of groups to a variety of criteria, and in general, the results have not been encouraging.

Sentence completions have been only moderately successful in evaluating psychological adjustment in children. The use of the method to evaluate the adjustment of special, homogeneous groups, and for global personality assessment has yielded data of considerable variability. Rohde (1946), reports validities of .79 and

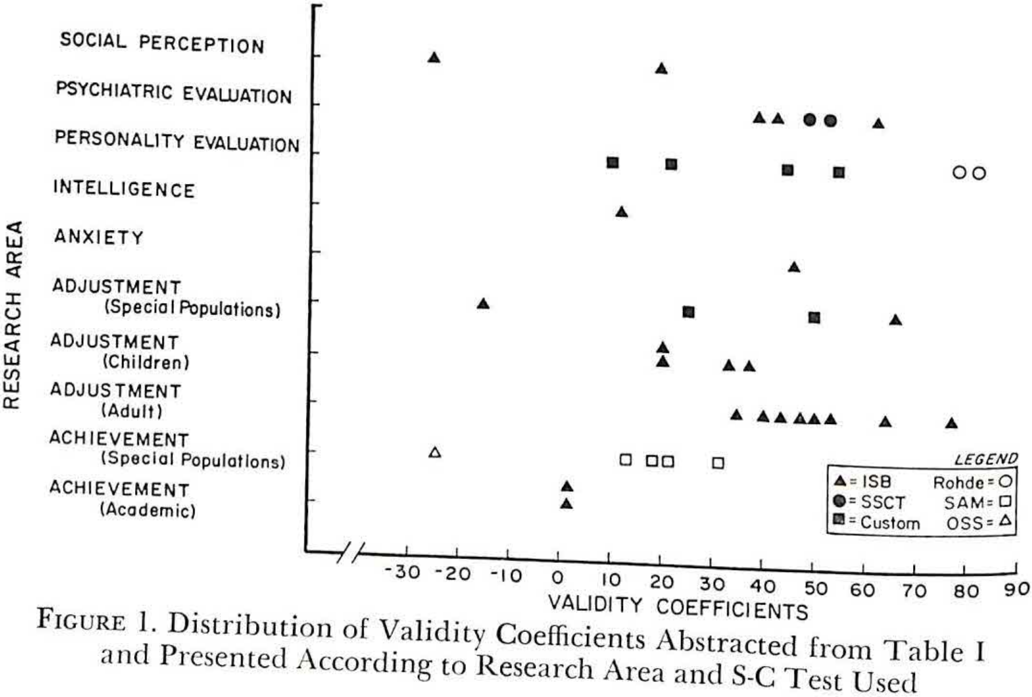

FIGURE 1. Distribution of Validity Coefficients Abstracted from Table I and Presented According to Research Area and S-C Test Used

.82 using the test for global personality evaluation. However, as noted previously, Rohde's methodology is open to criticism, and her findings are without corroboration.

Sentence completion tests, the ISB in particular, have, however, had consistent success in certain areas of psychological investigation. In the assessment of psychological adjustment in adults, and in the evaluation of severity of psychiatric disturbance, sentence completion methods have proven to have considerable sensitivity and utility.

The differences between the areas in which the method has and has not been successful are not surprising. Sentence completion tests, like all other tests, are most successful when they are used to measure the variables they were constructed to measure. The ISB, for example, was designed to be a measure of psychological adjustment and its standardization groups were male and female college students. Used as such a measure with such groups, the reliability, validity and usefulness of the instrument has received impressive support from a considerable research literature. That the ISB is unsuccessful when used with other groups, such as the blind, or when used for other purposes, such as to predict academic success, serves to determine the useful limits of the test. These negative findings do not, however, call into question the validity of the test which is always specific to a given, stated criterion or set of criteria.

This principle is, of course, obvious. It is also obvious that this principle has too often been ignored. Projective test adherents have too frequently allowed themselves and their techniques to be used inappropriately. There is no logical reason to believe that clinicians can use sentence completions or a Rorschach to predict the success of flight cadets. The inability of the clinician to do so, however, has been taken as proof of the general invalidity of these techniques (c.f. Holtzman and Sells, 1954).

The sentence completion method, again like other tests, has been relatively unsuccessful in making discriminative predictions for homogeneous groups. The sentence completion, for example, was not especially successful in predicting the success of graduate students in clinical psychology (Kelly and Fiske, 1951). It might be noted, however, that in the Kelly and Fiske study, the sentence completion, though not efficient by absolute standards, was relatively among the most successful predictors.

The sentence completion has not often been placed in direct competition with other projective devices, but when it has, it seems to have more than held its own. Murray, *et al.*, (1948) report that a sentence completion test was added to their evaluative techniques as an after-thought. After examining the performance of all tests, it was the only projective device they believed was worth retaining in their program. Certainly, if one compares the findings of standard reviews of the validity of other projective techniques, the support for the validity of the sentence completion method becomes even more impressive.[5]

CONCLUSIONS

Having reviewed much of what has been reported about the sentence completion method, several conclusions emerge.

1. The sentence completion is a valuable instrument in the assessment of personality that compares favorably to other standard instruments. A considerable, generally favorable, research literature tends to justify its wide clinical and research use.

2. Why the method works, and how

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[5] The reader is advised to consult Swenson (1957), Harris (1960), and Murstein (1963). These authors offer authoritative reviews of the DAP, Rorschach, and TAT respectively. This author's view is that the sentence completion compares favorably to these other methods in reliability, validity, and utility.

it works are not as clear. The relevance of the projection hypothesis to the sentence completion seems questionable, but alternate hypotheses of any conceptual power have yet to be advanced.

3. Most researchers, using the sentence completion, have seemed little bothered by the absence of a theoretical rationale underlying the use of the sentence completion method. A too general research practice involves the construction of custom tests with little more than face validity. These tests are then correlated with criteria, the validity of which are similarly suspect. Many of these studies, reported as though they were in final form, could more legitimately be regarded as pilot studies awaiting cross-validation. The lack of cross-validation, the absence of normative data, and the often gratuitous variations in procedure and structure, have combined to retard standardization of the sentence completion, and has tended to make development diffuse and disorderly.

4. There have been sentence completion forms that have been developed more systematically, most notably the Rotter ISB. Critics of the ISB, while noting its psychometric advantages, have tended to regard it as undynamic and of relatively little use for general clinical purposes.

The objections to the ISB have tended to focus on two aspects of the test: 1) the quantification of its scoring system; and 2) the use of a single-variable method of analysis. Proponents of the ISB have tended to endorse the test precisely because of these two features. There does appear to be essential soundness in both positions, and it is probably the case that the ISB sacrifices scope for efficiency.

5. The number of problems involved in the sentence completion method and the significant success it has achieved, should both require and encourage additional research with the method. Much research has suggested that subjects can exercise considerable conscious control over their responses. One obvious research need, then, would be for the development of measures of dissimulation and defensiveness appropriate to the sentence completion. More systematic investigations of the interaction effects of variations in instructions, set effects, stem structure, stem reference, and test length across populations should prove to be a valuable research contribution. Though the problem of context effects is obvious and would need to be explored, it might be possible to develop not only standard sets of stems, but standard individual stems. Such standardization would provide normative data for the association value of individual stems.

6. But, perhaps, the greatest research need in regard to the sentence completion would be the refinement and extension of already available sentence completion forms. Specific tests have become almost traditionally associated with specific subject populations and validity criteria. Extending these tests to new subject populations, utilizing new classes of criteria, would promote greater inter-research comparability, so that an already considerable research literature could be better integrated, better used, and better understood.

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The Stimulus Value of the TAT

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Summary: Ratings of all 30 TAT cards were obtained from 34 male and 40 female college students on the following 10 bipolar, adjectival scales: accepting-rejecting, aggressive-passive, dependent-independent, happy-sad, hopeful-hopeless, impulsive-controlled, pleasant-unpleasant, safe-dangerous, severe-lenient, and sexy-sexless. The results of the ratings indicate that the cards vary considerably as to their ambiguity, i.e., the number of scales which consistently describe the picture. Further, the stimulus properties of some cards are such that it is likely they will "pull" negatively-toned stories. It is suggested that in evaluating stories given to the TAT cards, the interpretation should be made only in light of the stimulus value of the particular card.

The use of TAT productions as an indication of an individual's fantasy life and motivational structure must of necessity take into consideration the nature of the stimulus materials which have elicited these stories. Clearly, a story with a depressive theme has a very different interpretive significance when it is given to a TAT card having a dysphoric quality than when it is given to a relatively innocuous card. This need to acquire as full an understanding of the "card pull" qualities of the TAT pictures has resulted in numerous speculations about, but only some research on the nature of the stimulus materials.

Henry (1956), in his book on the interpretation of the TAT, has discussed at length the stimulus properties of each of the pictures. Of particular importance is Henry's description of the "latent stimulus demand" —that is, the underlying emotional issue or issues—of each of the cards. Henry's descriptions of these latent stimulus properties, however, are based more on intuition and clinical experience than on the results of actual research.

In several pioneering studies in this area (Eron, 1950; Eron, 1953; Eron, Terry and Callahan, 1950; Rosenzweig and Flemming, 1949), efforts were made to develop norms for various aspects of the stories actually told to the cards. In contrast to these compilations of common themes, subsequent studies have been done in which various characteristics of the pictures themselves were assessed. Bijou and Kenny (1951) had 21 of the pictures rated for ambiguity value. Newbigging (1955) had two judges rate 12 of the pictures on a scale ranging from happiness to sadness. Lebo (1955) was concerned with the immediate affective reaction of *Ss* to 28 of the TAT cards, and obtained ratings for each picture on a five-point scale ranging from "like" to "dislike." Jacobs (1958) had 20 *Ss* rank order a set of 14 "concerns" as they applied to each of 12 pictures, only four of which were from the actual TAT series. More recently, Dollin and Sakoda (1962) had 51 *Ss* scale all 30 TAT pictures along a five-point "sad-happy" continuum.

Although these later approaches involved the rating of the TAT stimulus materials, the primary purpose of these studies was to relate some aspect of the stimulus value to some other variables, such as the extent to which personality factors were revealed in the stories told to these cards, order of card presentation, etc. Consequently, most studies involved either the rating of only a few cards or the use of only a few dimensions along which the cards were rated.

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[1] This paper was written while the senior author was at the University of Rochester. The authors are grateful to Ann Wilbur for her assistance in the analysis of the data.

The purpose of the present study is to survey the entire series of TAT pictures more comprehensively by means of the semantic differential (Osgood, Suci, and Tannenbaum, 1957), as was done for only part of the TAT by Reeves (1954) and as has been done in the case of the Rorschach blots by Rabin (1959), Zax and Loiselle (1960), and Little (1959). This should provide a direct measure of TAT "card pull," which Murstein (1958) and Newbigging (1955) have demonstrated to be related to the stories elicited.

METHOD

Subjects

Ss consisted of students enrolled in undergraduate courses at the University of Rochester. The mean age of male *Ss* (N=34) was 19.5, with an age range of 17 to 24 years. The mean age of female *Ss* (N=40) was 19.5, with a range of 17 to 22 years.

Materials

The stimulus material consisted of slides of all 30 TAT pictures; the blank card (No. 16) was not used. An effort was made to make sure that the illumination of the projected picture was comparable to that of the picture in the card form.

Most of the seven-point, bipolar adjectival scales used in the construction of the semantic differential were selected from those scales described by Osgood, *et al.* (1957). The overriding guide in the selection of the scales for the present study was that they be appropriate to a substantial number of the TAT cards. Henry's (1956) descriptions of the latent stimulus value of each of the cards were used in determining the relevancy of the scales selected. In a few cases, variations in Osgood's adjectival wording of a scale had to be made in order to make the scale more appropriate to the picture. One scale (sexy-sexless) which had not been used by Osgood and his associates was added to our form of the semantic differential; this scale was needed to cover a dimension which was appropriate to a number of the TAT pictures. The 10 scales comprising the present form of the semantic differential are presented in Table I. The scales were arranged into 30 random orders, so that a separate scale order existed for each of the TAT cards.

Procedure

All 30 TAT pictures were presented to *Ss* in group form by means of slides. *Ss* were given the standard semantic differential instructions for ratings, which are described by Osgood, *et al.* (1957). The TAT slides were projected in the order in which Murray has described them (i.e., 1, 2, 3BM, 3GF, etc.). Each picture was shown for one minute and 15 seconds; on the basis of some pilot work, this period of time was found to be sufficient for *Ss* to complete the ratings. An interval of 15 seconds (in which the screen was blank) was maintained between the presentation of each picture. Consequently, the time taken for each *S* to complete the ratings, which were done in one sitting, was approximately 45 minutes. All *Ss* in the study were tested in either one of two group rating sessions.

Analysis of data

The approach to the analysis of data followed the *deviation from neutrality* method which has been used in previous work on the semantic differential of animal symbols (Goldfried, 1963; Goldfried and Kissel, 1963)[2]. The mean scale score for each TAT card was computed separately for male and female *Ss*. Based on data presented by Osgood, *et al.* (1957), *one* mean scale score deviation or greater from the neutral rating of "4" was considered to be a significant ($p<.05$) deviation from neutrality. Thus, mean ratings of "3" or less and "5" or more were viewed as representing as interpretable semantic differential rating for the group.

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[2] For a discussion of the advantages of this approach over other methods, see Goldfried (1963).

RESULTS

The mean rating scale score for each of the 30 TAT cards is presented separately for male and female *Ss* in Table I.

As may be seen in Table I, mean scale scores of 3.00 or less and 5.00 or more are considered significant at the .05 level (Osgood, *et al.* 1957; Osgood, Ware, and Morris, 1961; Triandis and Osgood, 1958), and refer to the adjectives to the left and right of the bipolar continua, respectively. Of the 600 total possible instances in which significance could have occurred (i.e., 30 TAT cards X 10 scales X 2 sexes), 203 scale values reached statistical significance; 115 ratings were significant for females, and 88 for males. This tendency for females to obtain relatively more significant ratings is consistent with previous findings that semantic differential ratings of females tend to be more extreme than those of males (Goldfried, 1963). A further inspection of Table I reveals that even though the female group obtained significant ratings more often than males, there were no reversals in the direction of rating. That is, for any given TAT card, there never occurred any instance in which males significantly characterized the picture by one scale adjective and females by the opposite adjective.

One of the advantages of the mean deviation method in analyzing the results of semantic differential ratings is that the *intensity* as well as *direction* of the rating may be depicted. However, as Peabody (1962) has pointed out, intensity of reaction may be legitimately inferred only with respect to variation *within* a pool of an individual's (or any given group's) ratings; variation in extremeness of rating from one individual to another reflects more of general *rating style* than specific reaction intensity. Consequently, the analysis of variation in extremeness of rating in the present study was carried out separately *within* the male group and *within* the female group.

In describing the intensity of rating within the male and female groups, the quantifiers were selected from those used to describe the scale units to *Ss* in the semantic differential instructions—namely, "very," "quite," and "slightly." The criteria for assigning each of these quantifiers to the particular scale values is depicted graphically in Table II.

Messick (1957) has indicated that although each of the seven rating scale units is typically assigned a single integer, the boundaries of the unit are ±.5 the value of that integer. In describing the intensity of reaction for those ratings which were found to be significant departures from neutrality, the quantifier selected was determined by the interval within which the particular value fell. For example, Table I indicates that for TAT card 1, the mean ratings on the *aggressive-passive* scale were 5.59 and 5.78 for male and female *Ss*, respectively. Both of these values refer to significant *passive* ratings (i.e., 5.00 or greater); as both of the ratings have fallen within the limits of 5.5 and 6.5, we have additionally concluded that male and female *Ss* perceive card 1 as being "quite passive." The descriptions of the significant ratings for each of the 30 TAT cards are presented below in the Discussion section.

DISCUSSION

The discussion of these results will follow the pattern of a card-by-card description of our findings, and then a comparison of these findings with both the intuitive-experimental characterizations of Henry (1956) and the results of any relevant studies which have been done with the particular card in question.

TABLE I. Mean Ratings of TAT Cards for Male and Female *Ss*

TAT Card

Polar Score = 1	1		2		3 BM		3 GF		4		5		6 BM		6 GF		7 BM		7 GF		Polar Score = 7
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
accepting	3.91	4.20	3.44	3.20	4.71	**5.28**	4.44	**5.60**	**5.15**	**5.35**	4.09	4.35	4.09	4.52	4.27	4.70	3.56	3.23	4.15	4.38	rejecting
aggressive	**5.59**	**5.78**	3.56	4.48	**5.09**	4.98	4.35	4.28	**2.06**	**1.88**	3.74	3.48	4.82	4.78	**2.62**	**2.03**	4.21	4.55	**5.09**	**5.55**	passive
dependent	3.82	3.75	4.24	4.45	3.12	**2.65**	3.12	**2.65**	4.35	4.28	3.82	4.33	3.06	4.05	3.82	3.88	3.15	3.15	3.53	3.18	independent
happy	**5.21**	**5.33**	4.41	4.48	**6.35**	**6.75**	**6.38**	**6.90**	4.79	4.80	4.56	4.48	**6.21**	**6.35**	4.00	4.50	4.27	4.23	4.32	4.50	sad
hopeful	4.35	4.13	3.18	3.58	**5.94**	**6.30**	**5.91**	**6.50**	3.79	3.53	3.27	3.10	4.85	4.73	3.85	3.93	3.53	3.08	3.59	3.28	hopeless
impulsive	4.97	**5.18**	4.38	**5.28**	**2.74**	**2.80**	**2.82**	**2.40**	**2.12**	**1.78**	3.82	4.10	4.38	**5.18**	**2.97**	**2.90**	4.77	**5.25**	4.47	**5.08**	controlled
pleasant	3.94	4.05	3.56	3.85	**5.85**	**6.33**	**6.06**	**6.73**	**5.18**	**5.05**	4.38	4.73	**5.50**	**5.90**	4.24	**5.15**	4.82	4.13	3.91	3.65	unpleasant
safe	**2.74**	3.05	3.44	3.15	4.91	4.78	4.38	4.70	**5.53**	**5.10**	4.18	4.15	4.18	4.05	4.79	**5.35**	3.82	**3.00**	**2.94**	**2.70**	dangerous
severe	4.21	4.08	3.03	**2.93**	**2.56**	**2.90**	**2.56**	**2.35**	**2.65**	**2.70**	3.65	3.33	3.21	3.25	3.44	**2.80**	3.94	4.40	4.50	4.98	lenient
sexy	**5.44**	4.75	4.03	3.83	4.09	4.00	3.97	3.90	3.09	**2.65**	**5.00**	4.65	**5.35**	4.78	3.03	**2.65**	**5.38**	4.48	4.79	4.43	sexless

TAT Card

Polar Score = 1	8 BM		8 GF		9 BM		9 GF		10		11		12 M		12 F		12 BG		13 MF		Polar Score = 7
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
accepting	3.59	3.45	**2.62**	**2.90**	3.32	3.03	4.29	4.83	**2.65**	**1.90**	3.91	4.10	3.38	3.43	3.82	4.13	3.18	**2.50**	4.80	**5.48**	rejecting
aggressive	3.71	3.03	**5.62**	**6.03**	4.88	**5.23**	**2.79**	**2.65**	4.65	4.80	3.56	3.10	4.09	3.83	3.65	3.48	**5.88**	**6.05**	3.71	**3.00**	passive
dependent	4.15	4.38	3.65	3.88	4.59	**5.20**	4.71	4.78	**2.24**	**1.73**	**5.03**	4.98	3.35	3.43	4.09	4.03	4.88	4.98	3.68	3.28	independent
happy	4.59	4.68	3.41	3.13	4.12	3.83	4.65	4.70	**2.85**	**2.30**	3.88	4.00	4.91	**5.33**	4.06	4.50	**2.18**	**1.98**	**5.59**	**6.45**	sad
hopeful	3.06	3.33	**2.71**	**2.35**	4.35	4.05	3.82	3.90	**2.50**	**2.35**	4.21	4.08	3.85	4.35	4.06	4.20	**2.44**	**2.23**	**5.06**	**5.95**	hopeless
impulsive	4.41	**5.00**	4.97	**5.63**	4.44	4.13	**2.85**	**2.40**	3.82	4.23	3.56	3.35	4.62	4.53	4.06	4.00	4.32	4.88	**2.50**	**2.13**	controlled
pleasant	4.91	4.78	**2.94**	**2.63**	4.27	3.78	4.65	4.80	**2.68**	**2.33**	3.79	4.43	4.97	4.95	4.56	**5.05**	**1.56**	**1.63**	**5.15**	**6.35**	unpleasant
safe	4.91	4.83	**2.74**	**2.48**	3.97	3.75	4.82	**5.50**	**2.77**	**2.25**	**5.00**	**5.68**	4.91	4.38	4.35	4.68	**2.12**	**2.13**	4.62	**5.48**	dangerous
severe	**2.85**	**2.53**	4.94	4.78	3.88	4.43	3.18	3.33	4.74	**5.23**	3.18	**2.53**	3.27	3.50	3.29	**2.85**	**5.12**	**5.50**	3.09	**2.25**	lenient
sexy	**5.32**	4.20	3.88	3.53	**5.06**	3.28	3.29	3.60	3.29	**2.63**	**5.15**	4.73	**5.09**	4.20	4.82	4.08	4.41	4.08	**2.27**	**2.00**	sexless

TAT Card

Polar Score = 1	13 B		13 G		14		15		17 BM		17 GF		18 BM		18 GF		19		20		Polar Score = 7
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
accepting	3.74	3.58	3.38	3.28	3.47	3.38	4.03	4.58	3.09	3.40	3.62	4.10	4.94	**5.88**	4.27	4.43	4.06	4.80	3.65	3.85	rejecting
aggressive	4.68	**5.18**	4.32	4.18	4.35	4.18	4.12	3.98	**2.65**	**2.38**	4.38	3.88	**3.00**	**2.03**	3.47	3.10	3.29	**2.70**	4.41	4.85	passive
dependent	3.77	3.40	3.74	4.55	**5.00**	**5.35**	4.53	4.45	**5.12**	**5.60**	4.12	4.15	3.74	3.88	3.18	3.35	3.82	4.08	4.12	3.95	independent
happy	4.44	4.03	3.91	3.70	3.12	3.10	**5.50**	**6.05**	**2.56**	**2.53**	3.97	4.63	**5.21**	**5.70**	**5.38**	**6.00**	4.12	4.78	4.97	**5.23**	sad
hopeful	3.62	3.58	3.53	**2.95**	**2.62**	**2.23**	**5.38**	**5.95**	**3.00**	3.08	3.50	3.73	**5.15**	**5.13**	4.94	**5.15**	4.27	4.43	**5.18**	4.93	hopeless
impulsive	4.21	4.80	4.41	4.43	3.24	3.83	3.71	4.10	3.21	**2.73**	4.62	3.70	3.24	**2.38**	3.44	3.15	3.53	3.05	4.50	4.58	controlled
pleasant	4.00	3.85	3.91	3.73	**2.85**	**2.58**	**5.79**	**6.53**	**2.91**	**2.95**	3.97	4.30	**5.59**	**6.13**	**5.24**	**5.80**	4.29	**5.23**	4.88	4.75	unpleasant
safe	3.41	**2.70**	3.71	3.63	3.41	**2.83**	4.65	**5.28**	4.62	4.90	3.41	4.35	**5.21**	**6.15**	4.62	4.68	4.82	4.83	4.56	4.33	dangerous
severe	3.97	3.75	4.06	3.78	4.38	4.08	**2.32**	**1.63**	4.32	3.65	3.09	**2.95**	**2.74**	**2.05**	3.09	3.08	3.03	**2.43**	**2.85**	3.35	lenient
sexy	**5.06**	4.65	**5.03**	4.53	4.35	3.23	**5.56**	4.90	4.03	3.13	4.91	4.00	**5.06**	4.13	4.88	4.33	**5.24**	4.75	4.85	4.53	sexless

NOTE: Scores in **bold face** indicate a deviation from neutrality (i.e., 4.00) which is significant at the .05 level. Values **less than 4.00** refer to the adjective to the **left** of the bipolar continuum, while **values more than 4.00** refer to adjectives to the **right.**

TABLE II. Quantifiers Corresponding to Each of the Scale Units

.5 1.5 2.5 3.5 4.5 5.5 6.5 7.5

1	2	3	4	5	6	7
very	quite	slightly	——	slightly	quite	very

Card 1—Young boy with a violin. Our findings show that males view this card as quite *passive,* and slightly *sad, safe* and *sexless,* while females characterize it as quite *passive,* and slightly *sad* and *controlled.* These findings seem to agree well with the emotional tone ratings of stories told to this card by Eron's *Ss* (1950; 1953). In both of these studies, card 1 was found to elicit neutral or moderately sad stories. Further, Newbigging (1955) found this picture to fall about in the middle of his distribution of 10 cards that he had *Ss* rate along the happiness-sadness dimension. In general, the results of the present study would suggest that when stories concerning impulse versus control arise to this picture (as Henry indicates they typically do), it is likely that the themes of these stories will be passive and nonimpulsive in nature.

Card 2 — Country scene including two females and one male. In producing no significant ratings for males and being viewed only as slightly *controlled* and *severe* by females, this card seems to be lacking in strong demand quality, and thereby should be potentially high in ambiguity value; this is contrary to what was found by Bijou and Kenny (1951). Henry views this card as being capable of eliciting responses dealing with a variety of interpersonal interactions. The present finding that a specific set of dominant characteristics does not exist would tend to support Henry's view.

Card 3 BM — Huddled form of a boy with revolver beside him. This card tends to draw rather strong and specific reactions from both males and females. Males perceive it as quite *sad, hopeless* and *unpleasant,* and slightly *passive, impulsive* and *severe,* while females see it as very *sad,* quite *hopeless* and *unpleasant,* and slightly *rejecting, dependent, impulsive* and *severe.* A similar negative quality was found by Eron (1950) in the stories told to this card by his *Ss,* and by Lebo (1955), whose *Ss* found it one of the cards they least liked. In the same vein, Jacobs (1958) found that this picture aroused concerns with guilt, avoidance of rejection, compliance, aggression and sex in his *Ss.* Judging from the findings of the present study, Henry's view of this card as offering a "lone figure in what is generally a negative circumstance" would seem, if anything, an understatement. However, his expectation that the picture "arouses associations of loss, guilt, attack and aggression" would seem to be supported by our findings. Again, the results of the present study seem at odds with those of Bijou and Kenny, whose *Ss* rated this card as one of the most ambiguous cards among the 21 they examined.

Card 3 GF — Young woman with downcast head. This female counterpart of the previous card also elicits strong and definite reactions which are quite similar to those made to 3 BM. Males view 3 GF as quite *sad, hopeless* and *unpleasant,* and slightly *impulsive* and *severe.* Females regard it as very *sad* and *unpleasant,* quite *rejecting, hopeless, impulsive* and *severe,* and slightly *dependent.* This concurs with the negative emotional tone ratings of the stories told by Eron's (1953) *Ss,* as well as with the ratings of Lebo's (1955) *Ss* who tended to find it one of the more disliked cards. Newbigging's (1955) *Ss* similarly rated this picture as the saddest of the 10 cards they compared. Again, the findings of the present study are in keeping with Henry's feeling that this card has "negative dramatic quality."

Card 4 — A woman clutching the

shoulders of a man. This picture, like the two preceding ones, elicits strong and definite reactions from males and females alike. Males rate it as being quite *aggressive, impulsive* and *dangerous,* and slightly *rejecting, unpleasant* and *severe;* females view it as quite *aggressive* and *impulsive,* and slightly *rejecting, unpleasant, dangerous, severe* and *sexy.* According to these ratings, the themes of aggressiveness, impulsiveness, and danger seem to predominate over those of heterosexuality and "good and bad women," which are emphasized by Henry. The findings of Eron (1950; 1953) that moderate sadness characterizes the stories given to this card would not be contradicted by these findings, nor would Bijou and Kenney's findings that card 4 is one of the less ambiguous cards of the series.

Card 5 — A middle-aged woman looking into a room. The only dimension along which this card was placed with any consistency was the males' viewing it as slightly *sexless.* This would indicate that the stimulus is very low in demand quality and would contradict Henry's expectation that the card is "likely to portray attitudes toward the maternal figure, especially when seen as prohibitive and supervisory." Our findings would agree with those of Bijou and Kenny (1951), who found this card to be one of the most ambiguous. The high percentage of neutral emotional-tone ratings made to the stories produced on this card by Eron's (1950; 1953) *Ss* would also support this view.

Card 6 BM—A short elderly woman and a tall young man. Here males view this stimulus as being quite *sad,* and slightly *unpleasant* and *sexless.* Females see it as quite *sad* and *unpleasant,* and slightly *controlled.* This is in keeping with the tendencies of Eron's (1950) *Ss* to produce sad stories to this card, and Lebo's (1955) *Ss* to find it one of the more disliked cards. The present finding seems to support, in part, Henry's view that 6 BM "deals most generally with the attitudes of the subject toward maternal figures and particularly toward separation or discord in that relationship."

Card 6 GF—Young woman looking over her shoulder at an older man. For males this stimulus is seen only as slightly *aggressive* and *impulsive.* In the case of females, for whom the card is intended, the demand qualities seem more definite in that it is viewed as quite *aggressive,* and slightly *impulsive, unpleasant, dangerous, severe* and *sexy.* Thus, at least for female *Ss,* Henry's expectation that the theme of "sexual advancement" is probably foremost would be upheld. It should be noted, however, that the situation seems additionally to be regarded by the present *Ss* as an unpleasant, even dangerous one. This is in accord with Eron's (1953) finding that the emotional tone of stories told to this card tends to be predominately on the sad side.

Card 7 BM — A gray-haired man looking at a younger man. With males rating this card as slightly *sexless* and females seeing it only as slightly *controlled* and *safe,* it must be regarded as one of those pictures having the lowest specific demand qualities in the series. Henry describes it as dealing with "attitudes toward authority, toward the influences of external demands," and "attitudes of personal activity or passivity," a view which has received some support from Jacobs (1958). Present findings would not seem to support this, at least to the extent that such attitudes might be thought to elicit certain consistent feelings in responders. Eron (1950) found this card to elicit stories that were neutral in emotional tone in a large percentage of cases, which would be more consistent with the present findings. On the other hand, he also found that moderately sad stories were told to this card in another large percentage of cases. The present findings would not seem to support the results of Bijou and Kenny (1951), whose *Ss* placed this card about in the middle of their distribution of cards rated for degree of ambiguity. The rating of our *Ss* would suggest that this card should be among the most ambiguous.

Card 7 GF — Older woman sitting on sofa beside a girl with a doll. Males, in finding this card slightly *passive* and *safe,* and females, in seeing it as quite *passive*, slightly *controlled* and *safe,* tend to see it as low in demand characteristics. This corresponds with Eron's (1953) report that 50% of his *Ss* told stories to this card that were essentially neutral with respect to emotional tone, while the remaining 50% were nearly equally split between moderately sad and moderately happy stories. In a slightly different vein, Newbigging (1955) found 7 GF to be one of the happier pictures in the series, and this too would be supported by present findings. Henry characterizes this card as tapping "attitudes toward maternal relations and toward the presumed characteristics of older women," and suggests that "the fact that the girl is 'looking away' is seen by some as evidence of the child's rejection of the mother." Judging from the stimulus characteristics of the picture, present findings would suggest that the latter statement might not be well supported.

Card 8 BM — An adolescent boy and, in the background, the scene of a surgical operation. Males rate this card as slightly *severe* and *sexless;* females rate it as slightly *controlled* and *severe*. This picture, therefore, would seem to be another stimulus with weak demand properties. Henry's contention is that the picture is a "test of the subject's reality orientation as well as of his ambition" and that "it permits hostile and attacking fantasies to emerge." While these statements may be accurate, there is no evidence that the objective properties of the stimulus pull strongly in such directions. Also, the present findings would offer only slight confirmation to those of Eron (1950), who found that over 50% of his *Ss* produced stories to this card which were rated as sad in emotional tone.

Card 8 GF—A young woman, chin in hand, staring into space. Males rated this card as quite *passive*, and slightly *accepting, hopeful, pleasant* and *safe*. Female ratings indicated it was quite *passive, hopeful, controlled* and *safe*, and slightly *accepting* and *pleasant*. Thus, the card has a strong connotation, but not necessarily one that involves sadness as was found in the stories of most of Eron's (1953) *Ss*. On the contrary, the stimulus seems to be regarded as a positive one by the present *Ss*, which is in keeping with the findings of Newbigging (1955) whose *Ss* found it the happiest of the cards they rated. The present finding also supports Henry's contention that 8 GF "stimulates a positive daydream."

Card 9 BM—Four men in overalls, lying in the grass. In this case, males find the picture as slightly *sexless,* while females see it as slightly *passive* and *independent*. This suggests a lack of any single type of demand quality to produce ratings which are consistent in any direction. In his discussion of the latent stimulus demand of this card, Henry suggests that it involves "ease" and "lack of responsibility," as well as "the relationship of passive enjoyment to superego" and "male homosexual concerns." It may well be that all of these factors are present, but none to a great enough degree to result in consistent ratings. Eron's (1950) finding that stories told to this card (while primarily neutral) ranged from moderately sad to moderately happy would also suggest this. The finding of Bijou and Kenny (1951) that this card is viewed as one of the least ambiguous is contradicted by present results.

9 GF—A young woman behind a tree, watching another young woman running. Males see this card as slightly *aggressive* and *impulsive*, while fe males view it as quite *impulsive*, slightly *aggressive* and *dangerous*. This is consistent with Henry's view that the card reflects "conflict of either a sibling nature or of two women over a man," with Eron's (1953) finding that stories stimulated by this card are generally sad, and with Newbigging's (1955) report the *Ss* find 9 GF is rarely rated as a happy picture when compared with several others.

Card 10 – A young woman's head against a man's shoulder. This card provokes rather strong and consistent responses from males and, to an even greater extent, from females. Males see it as quite *dependent* and *hopeful*, and slightly *accepting*, *happy*, *pleasant* and *safe*, while females rate it as quite *accepting*, *dependent*, *happy*, *hopeful*, *pleasant* and *safe*, and slightly *lenient* and *sexy*. This conforms well with Newbigging's (1955) finding that this is rated as one of the happiest cards, and with Eron's (1953) finding that a majority of his female *Ss* and hospitalized males (Eron, 1950) told stories to this card which were happy ones. On the other hand, his non-hospitalized male *Ss* (Eron, 1950) told predominately sad stories. Generally, both Eron's male and female groups together produced stories which ranged quite widely – from very happy to very sad ones. Henry feels that the card draws stories reflective of the individual's perception of "the intimate emotional (though not generally sexual) relation" between male and female. However, the present results would suggest that the stimulus properties of the picture itself tends to pull positive feelings.

Card 11—A road skirting a deep chasm between high cliffs. This card is rated by males as slightly *independent*, *dangerous* and *sexless*, and by females as quite *dangerous* and slightly *severe*. The connotation of danger seems, therefore, consistent for both groups; this may either override any other feelings which might be engendered, or the card may simply not have any other strong demand characteristics. Henry's view of this card's latent demand seems to emphasize the idea that the situation is a dangerous one. He suggests that the card may elicit fearful, assertive or even succorant demands, and it may be that the existence of all such possibilities does indeed limit the degree to which consistently agreed-upon ratings will be given. Most of Eron's (1950; 1953) *Ss* tell stories that are on the sad side in emotional tone. Also in keeping with present findings, Bijou and Kenny (1951) report that card 11 is viewed as one of the most ambiguous in the series of 21 that they studied.

Card 12 M—Young man lying on a couch, with elderly man leaning over him. This card is rated only as slightly *sexless* by males and slightly *sad* by females, and as such seems to be quite low in demand characteristics. This is consistent with Bijou and Kenny's (1951) finding that it is seen as one of the more ambiguous pictures of those they studied. However, our findings do not agree too well with Eron's (1950) report that most stories told to this card were on the moderately sad side. The present finding also seems at odds with Henry's expectation that "the relation of the potentially passive and dependent to some superior uncontrollable force is the basic emotional stimulus here."

Card 12 F – Portrait of young woman, with old woman in a shawl in the background. Males failed to rate any scales in a manner consistent enough to result in a significant deviation from neutrality. Females regarded this stimulus as slightly *unpleasant* and *severe*. The results for females, for whom the card is typically intended, agree with those of Eron (1953), most of whose *Ss* tended to tell stories that were either neutral or sad when scaled for emotional tone. Our results are also consistent with Lebo's (1955) finding that 12 F is one of the more strongly disliked cards. Henry's contention that the card relates to "apprehension over control by an older woman" may be well taken, at least for female Ss.

Card 12 BG—A rowboat drawn up on the bank of a woodland stream. This card has very strong and pleasant connotations for both male and female Ss alike. Males view it as quite *passive, happy, hopeful, pleasant* and *safe,* and slightly *lenient.* Females rate 12 BG as quite *accepting, passive, happy, hopeful, pleasant* and *safe,* and slightly *lenient.* These results would support the finding of Bijou and Kenny (1951), who found that this card was rated as the least ambiguous of those they used. The present findings also are very much in line with Henry's description of the latent demand quality as involving "pastoral, quiet, idyllic" characteristics, and useful for reflecting "the extent to which the subject can handle the possible sensitivity and relaxation of this scene."

Card 13 MF—A young man standing, with the figure of a woman lying in bed behind him. This is another card which seems to elicit rather strong and consistent reactions. Males see it as quite *sad, impulsive* and *sexy,* and slightly *hopeless* and *unpleasant.* Females react even more strongly and rate it as quite *sad, hopeless, impulsive, unpleasant, severe* and *sexy,* and slightly *rejecting, aggressive* and *dangerous.* Differences in the views of males and females are greater on this card than on any of the others, and seem to be related to the differential cultural stereotype about frank sexual expression and its consequences. That is, as compared to males, females tend to attribute more phobic and dangerous characteristics to this scene. These results are very much in keeping with those of Eron (1950; 1953), whose Ss virtually always told sad stories to this card, and with the findings of Lebo (1955), whose Ss rated it one of the most disliked cards in the series. Present findings also support Henry's suggestion that "it might even be called a stimulus of illicit sex or of sex accompanied by guilt or other negative reactions." However, the demand quality of the card is so strong that it does not seem proper to assume, as Henry does, that "it suggests subject's attitude toward sex partner and particularly toward the reactions prior or subsequent to intercoursre," if by "attitude" one is speaking of S's habitual or general feeling in this area. To do so would undoubtedly cause one to err on the side of pathology. It would seem more accurate in this case to speak of the picture pulling S's *feelings about illicit sex,* and not sex per se.

Card 13 B — A little boy sitting on the doorstep of a log cabin. This card is rated only as slightly *sexless* by males and slightly *passive* and *safe* by females. As such it seems quite low in demand quality and Henry's assumption that it "suggests an underlying stimulus of loneliness and insignificance" seems unjustified. Bijou and Kenny's (1951) report that this card is rated as one of the least ambiguous is similarly not supported.

Card 13 G — A little girl climbing a winding flight of stairs. This is another card which seems quite low in demand quality, with males finding it only slightly *sexless,* and females rating it as slightly *hopeful.* This would contradict Henry's description of its latent demand as involving "the small person struggling against some impersonal but overwhelming environment."

Card 14 — The silhouette of a figure against a bright window. This card is rated by males as slightly *independent, hopeful* and *pleasant,* and by females as quite *hopeful,* slightly *independent, pleasant* and *safe.* The tendency to view this picture as being on the pleasant side is in keeping with Eron's (1953) findings with females, who tended to tell predominately pleasant or neutral stories to this card, as well as with Bijou and Kenny's (1951) report that it was found to be one of the less ambiguous cards. Eron's (1950) males, on the other hand, told predominately neutral or moderately sad stories in response to card 14, with only about 20% telling moderately happy ones. Present findings seem to support Henry's view that "This is most frequently a stimulus to self-ambition fantasy and daydreaming." At least for the *Ss* used in this study, his further suggestion that "In other persons, and in some of the middle-class persons, fantasies of suicide or other depressive fantasies appear" is not supported at all.

Card 15 — A gaunt man standing among gravestones. This card draws very strong and definite reactions from male and female Ss. Males regard it as quite *unpleasant, severe* and *sexless,* and slightly *sad* and *hopeless.* Females rate it as very *unpleasant,* quite *sad, hopeless* and *severe,* and slightly *dangerous.* This corresponds well with Eron's (1950; 1953) findings that about 90% of his *Ss* told sad stories in response to this card, with Lebo's (1955) report that it is one of the most strongly disliked cards, but *not* with Bijou and Kenny's (1951) finding that it is one of the most ambiguous of the cards they studied. Henry's suggestion that card 15 is "normally a sad picture lending itself especially to thoughts of sadness, death, and hostility" is well supported by present findings.

Card 17 BM — A naked man clinging to a rope. Males rate this stimulus as slightly *aggressive, independent, happy, hopeful* and *pleasant;* females regard it as quite *aggressive* and *independent,* and slightly *happy, impulsive* and *pleasant.* This concurs with Eron's (1950) report that most stories to this card are neutral to moderately happy, and with Bijou and Kenny's (1951) finding that 17 BM is one of the least ambiguous of the cards they studied. Henry's description of this card stresses the reflection of "the subject's concept of the relation of the individual to his environment and images of his prowess or vulnerability to environmental forces." There is nothing in the present finding to dispute this, although it should be added that for the type of *Ss* used in this study, such a stimulus calls forth rather positive and assertive associations.

Card 17 GF — A female figure leaning over the railing of a bridge. Of all the cards in the series, this one seems to be one of the very lowest in demand quality. Males produce no significantly consistent ratings for it, and females see it only as slightly *severe.* This corresponds fairly well with Eron's (1953) report that in response to this card 39% of his *Ss* told sad stories, 43% told neutral stories, and 17% told moderately happy stories. Present findings would *not* support Henry's assumption that "depressive, irregular, or dramatic aspects would appear to be the major emotional stimulus."

Card 18 BM—A man being clutched from behind by three hands. This card seems to possess strong and very definite demand characteristics. Males find it quite *unpleasant,* and slightly *aggressive, sad, hopeless, dangerous, severe* and *sexless.* Females view it as quite *rejecting, aggressive, sad, impulsive, unpleasant, dangerous* and *severe,* and slightly *hopeless.* In keeping with these results, Eron (1950) found few neutral or moderately happy stories to this card, and Lebo (1955) found it to be one of the most strongly disliked cards. Present findings also support Henry's contention that 18 BM "reflects the extent of the subject's feeling of control or hopeless susceptibility to the aggression of others." The results of the present ratings seem quite at odds with the report of Bijou and Kenny (1951) that 18 BM is one of the most ambiguous of the cards they studied.

Card 18 GF — A woman with her hands around the throat of another woman. Males rate this card as slightly *sad* and *unpleasant,* and females regard it as quite *sad* and *unpleasant,* and slightly *hopeless.* This again conforms well with the findings of Eron (1953), 95% of whose *Ss* told sad stories to this card, as well as with Lebo (1955), who found it one of the most disliked cards. Henry regards this stimulus as basically being laden with aggressive content, and present results would seem to support this.

Card 19 — A weird picture of cloud formations overhanging a snow-covered cabin. Males viewed this stimulus only as slightly *sexless*. Females rated it as quite *severe,* and slightly *aggressive* and *unpleasant*. This is pretty much in keeping with the finding of Eron (1950) with non-hospitalized male *Ss*, 36% of whose stories were happy, 43% of whose were sad, with the remainder being neutral. Present results also are supported by Eron's (1953) findings with females, 59% of whom told sad, and 41% neutral stories. From the current findings, as well as those of Eron, it would seem that Henry's contention that "the basic stimulus may also be conceptualized in terms of the potentially isolated individual (the cabin) in the presence of impersonal forces of potential evil" is a bit overdrawn.

Card 20 — A dimly illuminated figure leaning against a lamppost. Males rate this picture as being slightly *hopeless* and *severe,* while females regard it only as slightly *sad*. Consistent with this is the fact that 47% of Eron's (1953) female *Ss* told sad stories to this card, and 50% told neutral ones; further, nearly 90% of Eron's (1950) non-hospitalized males told sad stories to card 20. The ratings of the present study also conform well with Lebo's (1955) finding that it is a somewhat disliked card. The present findings are also somewhat in keeping with Henry's view that this stimulus pulls "indecision, indefiniteness [and] loneliness."

In interpreting the findings discussed above, the nonparametric nature of the study should be kept in mind. That is, the ratings of the TAT cards were not based on a representative sampling of all possible scales, but rather on scales which were deemed appropriate to Henry's (1956) description of the latent stimulus characteristics of the cards. In comparison to previous research, however, the ratings of the TAT pictures in the present study were nevertheless carried out on a greater number of dimensions.

Although the present results agree with some of the findings of Bijou and Kenny (1951) on card ambiguity (in both studies cards 5, 11, and 12 M were found to be ambiguous, while cards 4, 12 BG, 14, and 17 BM were found to be unambiguous), there are certain points of disagreement. According to present ratings, cards 2, 7 BM, 9 BM, and 13 B were found to be relatively ambiguous; Bijou and Kenny, however, found them to be unambiguous. Cards 15 and 18 BM, on the other hand, were found to be unambiguous in the present study, but ambiguous by Bijou and Kenny. A likely explanation for these discrepant findings rests on the method used to infer ambiguity. Bijou and Kenny determined degree of ambiguity by asking *Ss* to indicate the "number of possible interpretations" which could be given to the picture. In the present study, ambiguity was inferred by the number of ratings which could consistently characterize the picture — the fewer the number of scales which were used to describe the picture, the greater the ambiguity. With regard to Bijou and Kenny's procedure, it is conceivable that "number of possible interpretations" can be taken by *Ss* to mean the number of different stories which could be told to a picture, regardless of whether or not they are variations on a similar theme. By determining ambiguity according to the number of different connotations associated with the card, as was done in the present study, it is possible to overcome this problem of confounding.

The ratings of the stimulus properties of the TAT cards seem to be rather essential in the interpretation of a protocol, as they may be used to infer how much the story tells something about the individual and how much it tells about the card. For certain cards (e.g., 2, 5), the stimulus pull is sufficiently weak to allow for a reasonably safe assumption that the story reflects the inner state of the subject. For some pictures (e.g., 4, 13 MF), on the other hand, the stimulus properties of the card, more than the inner needs of the subject, are likely to be responsible for the story elicited.

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Perceptual Learning In The Reactive-Process Schizophrenias

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Summary: In normal vision, the various "gestalt-free" combinations which form early in a percept, are repressed by the emergence of the veridical composite perception; but in schizophrenic vision, with its inadequate repressive powers, the early combinations emerge as the completed composite. This completed composite, if at all veridical, is so only partially. Rorschach studies support the idea of a range of perceptual abortions among schizophrenics, varying directly with the process-reactive range.

Lack of an adequate theory of perception has been a major handicap in the development of a psychological theory about schizophrenia. Leading perception theorists have simply not taken into account the patterns that clinicians have noted among patients. Especially since the advent of the process-reactive views about schizophrenia (Becker, 1959; Kantor, Wallner, Winder, 1953; Zimet & Fine, 1959), has this handicap been highlighted.

As a help, the present paper proposes to outline the perceptual configurations which have been emphasized as prevalent by the investigation of the process-reactive hypothesis. Herron's (1962a) review of these studies brings out the following generalities:

1. The range of the schizophrenias from the reactive pole to the process one can be denoted quantitatively through projective testing.

2. Developmental retardation in the visual behavior of patients increases with the severity of their disorder. Perceptions of process schizophrenics are formless, diffuse, paralleling the perceptual conduct of children; reactive schizophrenics show clear and explicit perceptions, much more on the adult mode.

3. Logically correlated with these observations are the findings that the process layers of perceptions are autistic and idiosyncratic in content, while the reactive layers are socialized and consensual.

4. Characteristic of the process schizophrenics is a failure of central controls over the emergence of repressed materials. Yet, reactive patients govern adequately the emergence of primitive mental contents.

These are the grounds a general theory of perception must cover to contain the results of the process-reactive studies. It becomes clear, from surveying perceptual theory, that the maturation range of perceptual productions and the variations in perceptual control found among schizophrenics have not been sufficiently taken into account.

This idea can be placed in context by sketching two of the leading theoretical positions, that of the Hebbians and that of the Gestaltists. These were chosen, in preference to other viewpoints such as the Gibsons', because they so sharply oppose each other in the area of perceptual learning, an area involving important overlooked clinical findings.

HEBB VS. GESTALT

Since both theories have been given at length elsewhere (Solley & Murphy, 1960), a brief comparison here will suffice. The Gestaltist declares that the perception of objects is simple and immediate. Perception is an autochthonous property of brain function. The Hebbian finds perception to be a complex and time-taking end-product growing out of earlier sensori-motor habits.

A hypothesis about mental development is implicit in the two theories. Koffka (1931) believed that the mind develops by laying down successive memory traces which merge with immediate perceptual traces to form new percepts. Hebb's idea is that patterns are assembled through additive neural impressions that were established in the brain by a learning process. This joint interest in the connections between brain function and perception led to a series of experiments on stabilized retinal images. And because the stabilized image bares the basic frame of perception, it was hoped that this series might lend crucial weight to one side or the other. The hope was dashed, as the data turned out, but it led to a rapprochement between the two contenders.

Before considering the nature of this rapprochement, it is of value to consider the nature of stabilized-image experiments. It has long been known that any retinal image is moving constantly even when the eye is fixed on a motionless object. An image really tethered to the retina by some device soon disappears. After a period, the stabilized picture regenerates and becomes visible in whole or in detail. Over sustained length of observation, the image alternately disappears and reappears, either by part or by whole. The mechanism used for image-stabilization is simply a small projector (weighing ¼ gram) attached to a contact lens worn by the observer. With the contact lens moving as the eyeball moves, the target is anchored to one spot on the retina. And the point is that the established image fades and brightens in a way that yields insights about the perceptual process (Pritchard, 1961).

Do field effects prevail, as the Gestaltist would predict? Or, is the section of independent parts primary in stabilized vision, as the Hebbians must claim? Both positions, it seems, are sustained. When a human profile, for instance, fades and brightens in the fixed-image situation, it does so in the kind of units—the top of the head, the ear, the eye, the front of the face – established by previous learning. And the cell-assembly hypothesis is thus supported. But in another case, let us say that of an amorphous amoeba form obscured by cross-hatchings, the elements that re-form after initial fading, unite later into neater configurations. Support is here given to the Gestalt theory.

Facing the fact that in these stabilized-image experiments, the primacy of "good" figures and the action of whole units of forms buttress the basic Gestalt beliefs, while the discrete behavior of learned parts of the target figures coincides with cell-assembly predictions, Hebb offers an armistice to the two opponents. But first he makes a disclaimer: "It is grossly misleading to say either that normal perceptual organization is learned, or that it is unlearned" (1963, p. 23). Then he makes his proposal for peace. Let us separate, he says in effect, the sensory functions from the perceptual ones. The sensory processes are indeed what Gestalt theorists claim they are—immediate in effect, invariant in consequence, insensitive to experience – while the perceptual processes are mediating ones, triggered by but not wholly subject to sensory input, labile in consequence, and malleable under experience, as the cell-assembly theorists declare. Pastore, a Gestaltist, also came close to this Hebbian compromise by concluding in a late paper that learning factors exist in perception although they are clearly secondary and their influence can only come into play "when the perception-to-be-modified is already an existent one" (1960, p. 98). In short, he draws a distinction parallel to Hebb's, between the sensory origin and the experiential modification of a percept.

CONSTANCY AND PERCEPTUAL CONTROL

The crux lies in the agreement that *something is learned in perception,* whether primarily or secondarily. A natural question then arises: What is the learned function? To answer this question is one purpose of the present paper. It is our proposal that data on the constancy deficit suggest that control is a basic process that must be learned for perceptual competence.

Constancy stands high as a biological service of perception. So much so that Freedman defines perception as "imposing constancies and stabilities on the perceived world" (1961, p. 20). Certainly our accommodations to the objects surrounding us would become very troublesome and vulnerable to mistake if we had consciously to compensate for the continuous changes of shape, size, light, and the rest, in order to know the constant definitions of objects pertinent for our bearings in the world.

It is the constancy function to inhibit from conscious perception the accidental distortions brought about by lack of perspective, by poor illumination, by differences in distance; were it not for this controlling function, vision itself would vanish. The astonishing listlessness of persons born blind before the novel wonders of seeing is rendered sensible by our suggestions that, although they now had vision, they had not yet learned to control the irrelevant, and that their perceptions were therefore undiscriminating (Senden, 1960). These cases cited by Senden, it is true, present serious obstacles to belief: testing methods are unreliable, emotional turmoil is present, nystagmus enters as a factor. Yet, as Hebb notes, "the cases contain factual data whose meaning is unmistakable, reported by competent workers . . ." (1963, p. 25). Some corroboration to Senden exists in Riesen's (1947) investigation of chimpanzees reared in the dark. These animals surprised observers by displaying no vision when first brought into a normally lighted world. They had to learn to see. Again, it is advocated here that the control hypothesis takes into account that physical vision was present, but that meaningful sight was absent. The chimpanzees had to learn what irrelevancies to inhibit in order to grasp the constancy of forms.

If our formulation is correct, that perceptual constancies result from the successful inhibition, the schizophrenic should show a malfunction of perceptual constancy, because the inhibitory deficit of the schizophrenic prevents him from pruning away those visual elements incongruent to the stable gestalt. Therefore, constancy is malfunctioning in schizophrenics.

The evidence for this claim is quite respectable. But before turning to the empirical data, it seems worth re-stating that schizophrenia is not a homogeneous classification; the reactive groups should react differently from the process groups (Kantor & Jackson, 1962). This turns out, in fact, to be the case. Sanders and Pacht (1952), and then Raush (1952), each testing reactive schizophrenics, found that such cases tended toward over-constancy; i. e., to perceive the more distant of two identical figures as the bigger one. This result was attributed to the over-compensation of the reactive schizophrenic, who, because his loosened hold on reality is threatened by any instability in his environment, fights unusually hard against such instability. Raush (1952) points out that the compensation would represent an attempt to achieve a stability unwarranted by cues available to the subject. The direction of the compensation would be away from proximal stimulus values, with higher constancy scores. A way to reinforce this point would be to declare that the anxiety and tension of the reactive schizophrenic is tied to the tension of the Vorgestalt — there is a substitution of it for the completed Gestalt which would have had to admit painful parts (consensual data) of the total perception. The over constancy counteracts the inherently inconstant Vorgestalt.

Lovinger (1956) predicted that "poor-contact" (process) schizophrenics should show significant constancy inferiority since the compensatory conduct of reactive schizophrenics could not be expected. His experimental unit consisted of process schizophrenics, with normals and reactives as controls. As predicted, the experimental groups showed less size constancy than either of the control groups.

Johannsen, Friedman, and Liccione (1963) studied the functions of perceptual closure, threshold for visual identification of forms, depth perception, and critical fusion frequency in schizophrenics. Six patient groups increasing in chronicity were tested. The results on depth perception are particularly relevant here due to the functional connection between constancy and depth perception. Significantly defective performance appeared only in the extremely process groups, though there was a linear decrement up to that point. A comparison with other studies on constancy in schizophrenia indicates that four (Crookes, 1957; Weckowicz, 1957; Weckowicz & Hall, 1960; Weckowicz, Sommer, & Hall, 1958) support perceptual deficit in process schizophrenics, though one (Leibowitz & Pishkin, 1961) does not. Johannsen *et al.* state: "Perhaps the most general implication . . . is that researchers dealing with questions of psychological deficit in schizophrenia, cannot afford to ignore chronicity variables" (1963, p. 28).

It could be argued in respect to these findings that the lack of attention endemic in schizophrenia creates the constancy failure. But even granting this argument, it is still necessary to account for the *process* of perceptual deficit. This can be done by proposing that the focusing of conscious attention on an object automatically involves perceptual control to clear interfering elements from the field of focus. Thus, the attention disturbance in schizophrenia could be expected to bring about concomitant disturbances in the perceptual constancies.

MICROGENESIS

Perceptual control is the antithesis of thinking about everything at once. Instead of random interpretation of the thought processes by stimuli, selection takes place. There is a sorting out, an inhibition, suppression or repression of the irrelevant. Perceptual control, then, results in perceptual efficiency. This is a developmental process (Goldman, 1962; Werner, 1940; Winder, 1960) in which there is growth from globality to differentiation to integration. The development of perceptual control and efficiency involves both conscious and unconscious mechanisms.

The heuristic value of the construct of unconscious perception has been taken into account by neither the Hebbians nor by the Gestalt theorists, though the notion has both precedent and frequency of usage. Whyte (1960) states: "The idea of unconscious mental processes was, in many of its aspects, conceivable around 1700, topical around 1800, and became effective around 1900, . . ." (1960, p. 63). The unconscious undoubtedly owes its present position in clinical psychology to Freud (1946). Jung (1919) foreshadowed the part played in perception by repression and unconsciousness by proposing that "clang" associations are the initial reactions to words, and that they are *suppressed* and replaced by the more significant words which follow them in the apperceptive sequence. The experimental investigation of the unconscious has resulted in new terms, as "subception" and "perceptual defense," to describe discrimination without awareness and repression. It has also resulted in an unsettled controversy over the role of unconscious factors in perception. As MacKinnon and Dukes (1962) point out in a thorough review of research on repression: "In short, those who are convinced that repression serves as a shield in perception have discovered ample evidence to justify their belief, while those who reject the notion have found no convincing data to support it" (1962, p. 735).

Reviews of experimental investigations of the hypothesis of unconscious influences on behavior have been somewhat more optimistic (Herron, 1962b; Miller, 1950). As G. A. Miller points out in his discussion of selection in consciousness: "Two passengers leaned against the ship's rail and stared at the sea. 'There sure is a lot of water in the ocean,' said one. 'Yes,' answered his friend, 'and we've only seen the top of it' " (1962, p. 59).

In order to accommodate such considerations, it begins to appear that a perception theory ought to include: a position about external cognitive percepts; a position about internal affective percepts; and a position about the order governing these two perceptual orders that they may articulate with each other. The idea of microgenesis is useful in this respect, especially in the latter two matters. For the microgenetic theorists concern themselves with unformed, unaware percepts, and the relations of these to conscious, final gestalts.

Usually, Sander (1930) is credited with coining the basic currency of microgenetic principles, but Helmholtz (1948) preceded him by observing that the brief but tangible time-lag that comes between sensation and final precept is filled with unconscious inferences on the part of the perceiver. That there is a sequence of significant, not necessarily conscious, events intervening between reception and gestalt formation was indeed important to Sander: he argued that every normal perception was the end-product of an unfolding process which started with a conglomeration of perceiving/feeling and then swiftly evolved toward an explicit cognitive pattern. This flow of events he called "Aktualgenese," later translated by Werner (1956) as microgenesis.

The Sander hypothesis assumes that, under average stimulus conditions, the microgenetic unfolding of a percept is not directly observable, but that the process can be observed b placing percepts under abnorma stimulus conditions, such as shor tachistoscopic exposures. Sander and his students were both ingenious and energetic in their investigations of "Aktualgenese": as stimuli, some studies used noted paintings; others three dimensional figures; still others commonplace objects (Flavell & Draguns, 1958). These stimuli were usually presented under slowly lengthening tachistoscopic viewing times. But one investigator reversed the order by slowly shortening, rather than lengthening, the exposure periods. He demonstrated that the usual train of developmental levels was also reversed. Still other studies varied the size of stimuli; some moved stimuli, in gradual stages, from peripheral positions to points of central fixation. One investigator employed meaningless arrangements, while another shifted from visual impressions to tactile ones; and there were those who studied the temporal sequences involved.

From these experimental foundations, a consensual description microgenetic structure arose. Give the condition that a stimulus is presented with increasing visibility, the immediate first stage of perception is vague to the extreme; next, the figur and ground are distinct from one another, but the whole percept is still amorphous; third, the figure stands clear from the ground but is unstable — Sander called this the "Vorgestalt" and commented on the restless tensions which accompany it until the fourth stage of completed gestalt is reached. In this final stage, closure is experienced visually and aesthetic satisfaction is experienced emotionally by the viewer. Of course, these microdevelopments are rapid and unconscious. The perceiver is aware of th accomplished perception.

How neatly microgenesis fits in with ontogenesis was observed by Werner (1956). As have Freud, Sullivan, and many others, he stated that perceptual functions grow from amorphousness and globality in infancy to articulation and specificity in adulthood. But additionally, and unlike the others, he noted that these developmental stages paralleled the microgenetic levels. The importance of this parallel, Werner declared, is that pathological regression can now be understood, not only as a retreat to more child-like levels of maturational continuity, but also, as microgenetic abortion.

It has long been known, and empirically bolstered that man's travel depots from infancy to adulthood can turn out to be premature terminals or return-terminals for future regressions (Kantor & Winder, 1961). To this general regression concept, Werner (1956) tied a theory of microdevelopmental immaturity, thereby contributing a potentially fruitful correlation. During his experiment, he showed words under slowly broadening tachistoscopic exposure times, requiring of his normal subjects that they express their perceptions at each exposure until entire recognition was attained. In effect, Werner got verbal images of each microdevelopmental plane.

Garbled, but understandable, dollops of meaning were yielded by the subjects considerably before full recognition of the words. These premature spheres of meaning, enforced in normal persons by the handicapping tachistoscopic stimuli, were strikingly like the end-product verbal reactions offered by aphasics operating under favorable stimulus conditions, while attempting to classify familiar events. The vivid similarity between the normals and aphasics suggested to Werner that the aphasics' responses might be understood as a miscarriage resulting from the premature delivery of early microgenetic experiences into final verbal form.

Schilder (1951) studied cognitive behavior too, and extended the microgenetic abortion theory to the thinking processes of schizophrenics. Stating that thinking amplifies from an original "spheric" and unconscious state to a mature, differentiated, and conscious one, Schilder defined schizophrenic thinking as the "abortive formations produced in the course of the differentiation process of thought" (1951, p. 514).

Essentially, his position, like Werner's on aphasia, proposes that these abortive formations, which in normals are merely way-stations to the completed thought, become end-stations for the schizophrenics, being presented to the world as their terminal thinking products. Now Schilder is rather cavalier about proof. He cites some sparse clinical support for his suppositions and one illustrative case. Had he extended the microgenetic abortion theory of pathology to schizophrenic perception, rather than solely to thinking, he could soon have seen the following corroborative data.

About a year after Schilder's publication, Friedman (1952) exposed Rorschach cards to schizophrenics and to normals while gradually increasing the tachistoscopic time. Using a scoring scale on the continuum of amorphous-disintegration to specificity-organization, Friedman felt that his results demonstrated that the normals progressed from the initially vague level to the later integrated level, whereas the schizophrenics tended to remain fixed at the early undifferentiated plane. Dworetzki (1939) had indicated a similar approach in studying the evolutionary aspects of perception, though without a systematic theoretical framework. Friedman's results were confirmed and extended (Hemmendinger, 1953; Pena, 1953; Siegel, 1953), and placed within the framework of ego psychology (Wyatt, 1953). A similar relation between perceptual distortion and deficiencies in ego development has been suggested by Winder (1960). This research series on perceptual pathology used the Rorschach test to demonstrate the range of genetic development and its reversal in psychopathology. The foundations of such an approach was

Werner's (1940) genetic-developmental theory of behavior. In addition, as Siegel (1953) points out, the data becomes more valuable if considered within the developmental phases suggested by Harry Stack Sullivan (1947).

The value of this developmental approach to the Rorschach has been supported by demonstrations of difference between perceptual reactions of normals and schizophrenics (Phillips & Framo, 1954). Also, the Rorschach developmental index is related to degree of social effectiveness (Fowler, 1957), to form a symptom expression (Kruger, 1954; Mish, 1954), and to the process-reactive distinction in schizophrenia (Becker, 1956; Becker, 1959; Fine & Zimet, 1959; Zimet & Fine, 1959). Genetic-level scores have been found to be related to hospital discharge (Levine, 1959) and to social participation and hospital adjustment (Wilensky, 1959). The principles of age-level scoring have also been extended to the Holtzman Inkblot Test (Steffy & Becker, 1961).

Using a somewhat different method, Kantor and Winder devised a fuller developmental score using all of the aspects of the Rorschach protocol rather than just those related to the formal or structural components. The result was an "Age-Level" score derived by matching various aspects of the protocol (i. e., content, vocabulary, color-form integration, etc.) with established Rorschach age norms. The "Age-Level" scale has been used to differentiate mothers of schizophrenics from mothers of normal sons (Winder & Kantor, 1958), to pin-point that time of his life when the schizophrenic received the traumata precipitating his malfunction (Kantor & Winder, 1961), and to indicate a relationship between perceptual development and psychosomatic illness (Clemes, Tanous, & Kantor, 1963). In these papers, the authors noted that although there were protocols extreme in their maturity as others were extreme in their immaturity, nevertheless the majority of test patterns were on a graduated continuum. In other words, it is a bit-by-bit change from the unconscious, chaotic perception up to the conscious and elegant gestalt. This gradual transition from submerged perception to surface perception is more complex than it at first appears, for it is in this transition that inhibitory actions are crucial. When these controls fail, then the transitional train of events breaks down: microdevelopmental miscarriage occurs.

CONTROL REVISITED

Of course, the similarity is clear between the primary processes and the microgenetically early states. Freud noted this similarity in a letter to Fliess, but without any knowledge of a formulated theory of microgenesis (Bonaparte, Freud, & Kris, 1954). The letter was originally written in 1896 and in it Freud was quite explicit about the role of repression in propelling primitive mental states into the later stages of rationality. Not only mental content but the mental structure which carries it, Freud argued, marks a specific level of genetic maturity stored in the unconscious.

Every percept that rises to consciousness must do so by flashing through these levels from lowest to highest. At each level, the percept must be "translated" in such a way as to don the structure relevant to that level. "Every later translation," says Freud, "inhibits the earlier one and attracts its cathexis" (Bonaparte, Freud, & Kris, 1954, p. 175). Failure of translation is failure of successful control. When failure occurs at one level, the percept is available only in the structure of earlier levels.

In order to explain how the initial states of primary process yield to the adult states of secondary process, Freud (1955) concluded that a construct of control was indispensible. He posited that even in the grown-up, secondary and primary processes exist side-by-side, but that only the rational secondary processes are visible for they act to inhibit the irrational primary processes. Ordinarily, the leash of this control is slipped by the primary processes only in oblique ways: in jokes, in dreams, in errors of the tongue, in persons extremely affected by stress, in the thinking of primitives and of children.

When the primary processes do get loose, as in schizophrenia or in dreams, then concepts and percepts are concrete, uncritical of content and structure, transitory, and bizarrely formed. These are the workings of the ungoverned and submerged portion of the mind, or as Freud phrased it, "... modes of activity of the physical apparatus that have been freed from an inhibition" (Bonaparte, Freud, & Kris, 1954, p. 605). It is inhibition then that enables a victory of reality-bound secondary process over chaotic primary process, for when repression is overthrown in the dreamer or in the schizophrenic, lawlessness reigns.

Followers of Freud, entranced more with his theories of content, did not follow up this genetic structural hypothesis. But through the years, there have appeared experimental data to strengthen the idea of genetic structural levels which are rendered operational by the control function. Sander (1930) had observed that perceptions at the "Vorgestalt" level are transformed into completer Gestalten by the inhibition of object similarity. The same observation was made by Brigden (1933) when he noted that, as development proceeded, the obstacles to completion, to symmetry, to closure, of the geometric figures which he employed as stimuli, were successfully eliminated.

As entirely independent line of support for genetic structure and repression comes from Hughling Jackson's (Taylor, 1931) hierarchical principles of physiological organization. The central nervous system, he asserted, keeps its archaic operations, but these were repressed and hidden by the newer functions of successively arriving levels. Jackson's central point was that these primordial operations surge to the surface whenever the later—and more complex — operations are scuttled, as in aphasia or in head wounds. Functions, he went on, which arrive last, are the most specialized and the most involved; however, they are also the most sensitive to adversity. One such function would be symbolic capacity which, since it is a most intricate cerebral office, collapses first under cerebral hurts.

For most of his contemporaries, Jackson's ideas were unpalatable. In the celebrated clash with Broca, at the 1868 meeting of the British Association for the Advancement of Science, in which the two men discussed their conflicting hypotheses about brain processes, Broca triumphed. Thereafter Jackson languished in innocuous desuetude so far as the fields of psychopathology were concerned, in spite of the deference paid to him by such workers as von Monakow, Pick, and Adolph Meyer. Jackson's star did not rise again until World War I, when Henry Head, treating brain-wounded soldiers in Britain, demonstrated the superior utility of Jackson's approach. Today of course, the Jacksonian principles are widely accepted, especially among workers in the field of central nervous system injuries.

When the picture of a hierarchical system of differentiation within the mind is combined with the microgenetic idea that each act of perception involves rapid transit through these stacked levels, it becomes useful to propose that the lowest levels possess mostly internal, idiosyncratic perceptual patterns, whereas the highest levels are externally oriented and consensually validated in configurational character. The Gibsons (1955) proposed just that, declaring perceptual development to be a journey toward "psychophysical veridicality."

According to them, the human infant starts with all the essentials necessary to the perceptual act, although his percepts are exceedingly amorphous. In his next stage of development, the child stores up a considerable amount of interoceptive, memoric, and proprioceptive materials which he has come to define as comforting. This is his autistic stage. Finally, in maturity, he represses and reduces his autism, as he cultivates and increases veridical data for accurate perceptions.

While the Gibsonian model confines itself to describing normal progression in life, several writers have extended its boundaries by studying the perceptual difficulties involved for the human when his life-conditions prove to be anxiety-provoking. Then, says McReynolds (1960), new cues tend to be rejected, or if received, remain undigested and unassimilated. Indeed, McReynolds would define schizophrenia by its inordinate amount of unassimilated percepts. In construing assimilation as that classification of percepts such that they join harmoniously with prior perceptual schema, McReynolds allies himself with Bruner's position. The human perceiver, according to Bruner (1951), in that tiny interval which precedes the formation of a conscious image, coins "hypotheses" which are included in or excluded from awareness, depending on whether they fit congruently with existing autonomic and memoric traces.

The role that inhibition can play in the acceptance or rejection of percepts is a serviceable supplement to the standpoint offered by McReynolds and by Bruner. Their ideas, before outlining the role of repression, should be re-phrased, it seems to the present authors, so as to state that, when the human is hurt in his environment, his scanning processes — the exposure of his receptive organs to provocative cues — turn to past, and therefore internalized, cues which once were satisfactory, rather than to the present external ones which are wounding. These internal stimulus energies, especially if they are persistently imperative to the perceiver, will hinder, or may even permanently defeat, his reception of external realities. It is one of the contentions of the present point of view, that autistic scanning of this variety can take place only if the control function, which hides internal cues, is destroyed. And, as we have held forth, when the control mechanism does cease to function, primitive and idiosyncratic materials, ordinarily suppressed and replaced by veridical materials, now burst out as final expressions.

To put the position in our previous terms, during the momentary ambiguity which anticipates the formulated image, the perceiver undergoes many vague and unconscious form experiences as his eye scans an object. The final shape, as Pritchard (1961) has shown, is a combination of several discrete impressions, not any one of which holds the whole of the image. Those portions not actually seen are supplied automatically from memory. While the scanning goes on, the stability of the configuration is preserved by a constancy function serving to keep the parts fixed in their positions within the whole. It seems a reasonable, and useful supposition that, in normal vision, the various "gestalt-free" combinations which come at first are inhibited by the emergence of the veridical composite; but that in schizophrenic vision, with its inadequate inhibitory powers, the earlier combinations emerge as the completed composite. This completed composite, if at all veridical, is only partially so.

CONCLUSION

We have asked, and tried to answer, two questions. Each answer, as it expanded, has cross-influenced the other. To illustrate this, the questions, and their answers, are presented in parallel form.

What additional constructs are required to render perceptual theory consonant with the facts of schizophrenia?

1. *The control function is an important part of perceptual behavior.* Object constancy, the articulation of gestalts, the selectivity of culturally-allowed contents, all involve the suppression from consciousness of unwanted materials. Both the Gestaltists and the Hebbians pay no attention in their theories, to the disposal and storage of these unarticulated elements. Yet, in important phases of normal life – dreams, fantasies, slips of the tongue – as well as in abnormal life – schizophrenia – these suppressed elements may return to overt conduct. Recently, Meehl (1962) brought this latter unattended clinical datum to the forefront, by proposing that the loss of controlling action is basic to schizophrenia. He called the loss "cognitive slippage," defining this as "defective *control* over associations which are also accessible to the healthy . . . but are normally 'edited out' or 'automatically suppressed' by those superordinate monitoring assembly systems we lump together under the term 'set' " (Meehl, 1962, p. 834).

To incorporate inhibition as an important part of perceptual behavior would allow the idea that controlling mechanisms govern the entry into consciousness of sensory materials which have already been mentally registered.

2. *Perception is a microgenetic process,* completing a course of normal development through the agency of control. Every perceptual act evolves, very swiftly, from primitive mental levels to the most mature ones. In doing so, the act wears the characteristic mantle of each level, before being translated to the next higher level. The translation process is understood as one which garners the energy from the lower level in the service of the higher level, and also suppresses the appearance of that lower level.

Microdevelopment of perception is analogous to the ontogenesis of the complete individual who grows, over a lifetime, from an original unformed global plane of action to a mature, articulated, and purposeful plane. Catastrophe in life seems to result in uncompleted perceptions and in childlike conduct in general.

What might an enhanced perceptivity theory add to the knowledge of schizophrenia?

1. *The failure of repression, an anxiety laden form of control, basic to the schizophrenic breakdown, operates through microgenetic abortion.* Formation of consensual validated perceptions depends upon inhibition for the elimination of materials foreign to the final configuration. Since this gestalt-formation process progresses rapidly through several hierarchical levels of mentation, depending at each level on inhibition in order to get to the next one, failure of inhibition at any level will result in an uncompleted percept being precipitated out as the end-product. Schizophrenia, a continuum of malignancies, may manifest accordingly a continuum of misperceptions ranging from the most primitive to the almost adult. Furthermore, it seems reasonable to infer, the first manifestations of schizophrenia are to be found in perceptual distortions; these distortions lead to the break with reality, rather than, as it is usually held, the other way around.

2. *Microgenetic abortion joins as a concept with ontogenetic failure to describe the schizophrenias.* From the ontogenetic point of view, the totality of the adult mind has been constructed, layer by layer, throughout the person's growth. Therefore, as Giardano Bruno is alleged to have remarked, "if the first button of a man's coat is wrongly buttoned, all the rest will be crooked." Depending upon which button was first wrongly done, the malignancy depth of schizophrenia varies accordingly. In order to take the ontogenetic model into account, as well as to encompass the microgenetic data, schizophrenia can be comprehended as existing on a developmental continuum, with perceptual functioning as an operational measuring stick of that continuum. The schizophrenias could be systematically distributed along a continuum of social maturity; the premise being that there are sequential steps in experience which every human encounters. In every step is a central crisis which must be met with at least partial success before newer experiences can be organized effectively on the maturation continuum. Incomplete mastery of the central problem in each stage is the antecedent to

3. *That there is unconscious as well as conscious perception* becomes a necessary postulate if the implications of perceptual control and microgenesis are followed. Both perceptual control and microgenesis involve mental levels of form differentiation some of which are inaccessible to consciousness. These subsurface, or unconscious, form differentiations are characterized by varying degrees of structural and content entropy, and by the irrational inventory of fantasies, traumata, thoughts, judgments, and memory, which appear frankly in the range of human conduct from art, through humor, to schizophrenia.

When the construct of unconscious perception is added to the general structure of perceiving, the doorway is opened to the entry of the arational and of the affective parts of human perceptivity into a psychology which, hitherto, has been hospitable only to the rational and to the cognitive functions.

4. *There is a fixed and limited amount of energy available to the perceptual apparatus*, and this energy shuttles between the different mental levels. From this point of view, whether conscious or unconscious perceptions predominate in the person hinges upon the contention between these two levels for the complete energy fund. In other words, the dynamics of perceptual attention are such that concentration in the area of conscious perception inhibits — draws the energy from — unconscious perception and vice versa. The clearer the convergence upon an explicit perceptual performance, the more obscure will be the rest of the perceptual field.

When unconscious perceptions drain the conscious mind, the energy fund thus won is released in primitive forms and feelings. When the conscious perceptions win the contest, the energy is liberated into articulate gestalts and into socialized feelings.

5. *Every percept has two features: one to do with structure and the other to do with content.* The structural is the more purely sensory, while the content feature has more the aspect of meaning. Certainly, the two features are usually wedded in a percept, but it seems useful to remember that distinct differences exist between them: structural inhibition operates against the unconscious form processes, whereas superego inhibitions obtain against id contents.

that regression and to that developmental failure which is reflected in schizophrenia.

3. *The over-availability of unconscious materials, so typical of the schizophrenic states, can be depicted quantitatively in terms of the level of regression.* Following the idea that the schizophrenic regresses to the stage of life at which his maturational arrest took place, his perceptual materials and his social conduct constitute a genetic parallel to some childhood level. And this level is measurable through the Rorschach responses which, a number of investigators have found, change systematically from childhood to adulthood. Kantor and Winder (1961) used these findings to establish an "Age-Level Score" by matching various aspects of the Rorschach protocol with established Rorschach age norms. By this matching process, the "Age-Level Score" defines the plane of schizophrenic regression, and thus predicts the kind of unconscious productions which may be expected.

4. *Disturbance in the energy distribution of the perceptual process is a significant factor in the schizophrenic condition.* Schizophrenia, a state in which unconscious perceptions are prominent, involves, because of this state, a withdrawal of energy from the adult perceptual layers into the primitive layers. In the process schizophrenias, the conscious levels are maximally drained, and the energy fund is in these cases, discharged through the channels of uninhibited emotions and of chaotic form. In the reactive schizophrenias, the drain of energy from conscious perceptions is less, but there is still enough loss so that some schizophrenic imperceptivity appears.

When the available energy supply is concentrated inwardly, the postulate of fixed energy implies, the out-going functions — speech, thought—may be broadly depleted. Were this depletion sustained and severe, the loosening of reality ties would be an expected consequence.

5. *The formal framework of schizophrenia has been emphasized here at the expense of psychodynamic content.* Certainly this approach has not been fashionable in recent years, partly due to the discovery that many of the early measurements of formal disorder caught only the patients' frights, disinterest, or resentment, and partly due to the therapists' focus on the interpersonal aspects of patients.

Yet, it seems possible to build a picture of

That separate cortical storage systems exist, corresponding to the two components of a percept, is suggested by the work of Penfield (1952). When he probed the cortices of conscious subjects, areas of exclusively sensory qualities were to be found with no discernible meanings, but in other areas, there were reports of clearly meaningful events.

schizophrenia through the use of formal structures which will order certain ranges of data in ways previously unrealized. In this study of perceptual disorder, it was hoped to capture the advantage that perception bridges both genetic organization and learning.

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The Rorschach Test as a Research Device for the Identification, Prediction and Understanding of Suicidal Ideation and Behavior

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Summary: An uncritical analysis of the empirical Rorschach literature in the area of suicide could lead one to conclude that the test has little value for the identification, prediction and understanding of suicide. It was felt that the reasons for this could be related to the several inconsistencies in methodology and design found among the studies. The research data were classified into four groups (1) determinants and ratios, (2) single signs, (3) multiple signs, and (4) content, and reviewed from a methodological standpoint. From this analysis it was concluded that there was no specific pathognomic sign for suicide on the Rorschach. It was also pointed out that certain difficulties ("paper" investigations, and research conditions which mediate against significance at the .05 level) reduce the effectiveness of the Rorschach investigator. Certain methodological and design weaknesses were discussed in terms of their contributing to equivocality among the studies. Comparisons between the studies cited were difficult to make because of their differing experimental designs and operational definitions of suicide. Because of this, the Rorschach itself cannot be held culpable for the equivocal results.

The Rorschach Test seems to exert some kind of fascination for researchers interested in suicide since its usage far outstrips all other psychological tests used in suicide investigations. This may be due to the test's presumed peculiar dual ability to provide "objective" scores leading to systematization of data, as well as supplying integrated and broad descriptions of cognitive and personality psychodynamics.

Almost every study starts with a statement implying that the previous research with the Rorschach in the area of suicide has yielded equivocal results and that the present research will clarify the relationships involved. A perusal of these studies could dampen the ardor of even the most enthusiastic Rorschach supporters. The results are, to put it mildly, equivocal, inconsistent, and contradictory. It would be easy for the casual observer to "write off" the Rorschach in terms of its capacity to provide important information about suicidal ideation or clues leading to identification and prediction of suicidal individuals. However, before relegating the Rorschach to the shelf, it may be of interest to analyze how the Rorschach has been utilized by suicide researchers. Such an analysis reveals that the inconsistent results can be traced to the inconsistent utilization of the test. Whatever positive results the Rorschach might contribute to the understanding of suicide have been obscured by both the various experimental maneuvers and operational definitions of suicide used to study the relationship. The gathering of data for suicide research offers the investigator no end of difficulty. Stengel and Cook (1958) have likened this problem to that of a pathologist trying to establish the cause of death without having access to the corpse. Since the incidence of suicide is low (Rosen, 1954), the researcher must gather protocols in any way he can in order to assemble an appreciable sample size. This often means that he must gather data from different hospitals and clinics, as well as relax any stringent concerns about the temporal intervals between the administration of the test and the exhibition of the suicidal behavior. Sometimes suicidal behavior is not used as the criterion but is supplemented or replaced by such things as "profound depression," and/or "suicidal thoughts."

The vague classification of suicide

as used by researchers has already been discussed by Neuringer (1962) who pointed out that the rubric has been used in over fourteen different ways in suicide research. Even observable and verifiable attempts may have profoundly different motivational bases. The person who takes a small dosage of barbiturates in order to threaten, warn or manipulate another person, and the individual who has shot himself through the head but has been saved by medical science, are usually both classified as "suicide attempters." It then is not difficult to understand why their Rorschach protocols (if available) are inconsistent.

It may be tedious for the reader to have the suicide researchers' methodological problems tediously described for him. But these difficulties provide the key towards understanding why Rorschach studies have not produced consistent results.

It may be useful to pause and speculate about what characteristics must be fulfilled by a test if it is to be considered as adequate to the purpose for which it is used. Validity and reliability are certainly expected. Can these criteria be applied to the Rorschach test when involved with the study of suicide? The problem of validity is less easy to deal with than that of reliability. A validation procedure such as Guilford (1948) used for pilot selection in World War II is not feasible in suicide predictive research. Success in flight instruction school was the validating criterion of the pilot selection program. Society, which includes the suicide investigator, is loath to allow his sample suicide groups to "succeed"; and so corrective measures (electroshock, ataratic drugs, psychotherapy, etc.) are usually instituted in order to intervene with the suicidal process. This will interfere with validations of predictions of suicide, and thus the validity of suicide predictions based on any test must of necessity be low. Post-mortem investigations of whatever data is available is probably the best method of establishing the validity of predictive indices.

The problem is even further obscured when the criteria for establishing validity are themselves obscure. The poor definition and classification of suicide makes it difficult to clearly and explicitly set up any adequate validating criteria. In essence, the suicide investigator cannot evaluate the validity of his own studies because he cannot clearly classify what is the subject of the research. It is then no wonder that results of suicide investigations utilizing the Rorschach vary from study to study.

In order for a test to be reliable it should produce near identical results when evaluated under near identical conditions. What is being measured may not be known, but reliability is an index that that quantity is being consistently measured. If a certain result does not appear consistently under identical conditions, it can be concluded that the measuring instrument is unreliable. The Rorschach data from suicide studies are not particularly reliable. But this seems to be due more to the lack of identical or similar conditions among experimental designs than to the instrument itself. The cause of the difficulty may be traced to the methodological and definitional confusions of the suicide investigator.

Studies of suicide with the Rorschach may be roughly classified into four groups. They are investigatons of (1) determinants and ratios, (2) single signs, (3) multiple signs, and (4) content. In this presentation the varying investigations will be described and discussed from a methodological standpoint and possible new approaches to remedying certain problems will be suggested. This review is restricted to empirical comparative studies. There are some excellent theoretical and descriptive papers available (Bachrach, 1951; Beck, 1945, 1960; Holzberg, Cahen & Wilk, 1951; Lindner, 1950; Piotrowski, 1950; Rabin, 1946; Teicher, 1947; Ulett, Martin & McBride, 1950; White and Schreiber, 1952; Varvel, 1941) which are strongly recommended to the reader.

One note should be made about the organization of the following sections. Several of these studies fall into more than one classification. In order to conserve space, such studies will usually be described at length the first time they are discussed. Thereafter the results will merely be cited.

DETERMINANTS AND RATIOS

The research paradigm for the study of determinants and ratios involves a comparative assessment of the Rorschach protocols of a suicidal group and a non-suicidal group. The earliest study of this kind was conducted by Berk (1949). He presented the results of a comparison conducted between the records of 25 male suicidal attempt schizophrenics and 30 non-suicidal male schizophrenics. The suicidal patients produced significantly more FC and At responses than did the controls. Out of the vast number of comparisons made, these two significant differences may well have been due to chance. If, however, they appear again in a repeat study, some confidence could be placed in these findings. Fisher (1951) also utilizing male suicidal attempt schizophrenics and non-suicidal schizophrenic patients reported that his suicidal subjects gave *fewer* FC responses and longer IRT's than the controls. Berk had not reported any significant difference between IRT's in his study. However, it should be noted that different methods of statistical analysis were used by these investigators.

Broida (1954) also utilized schizophrenic patients but differed from the studies already cited in that the suicidal patients were chosen on the basis of ward psychiatric judgments and not solely on the basis of overt suicidal behavior. These patients' protocols were compared with those of severely depressed but not suicidal (again based on the ward psychiatrist's judgment) controls. The suicidal patients only produced significantly fewer A responses than the controls.

Costello (1958) utilized the records of suicide attempt males and females of mixed diagnostic origin, and a control group matched on sex, age, IQ and diagnosis. He reported that the suicidal patients produced fewer R, M, m and C responses than the suicidal subjects. Hertz (1949), also utilizing a mixed "clinical" group of suicidal and control protocols, found that C responses were more prevalent among the suicidal than control Rorschachs. This runs counter to Costello's findings.

Pratt (1951) compared the Rorschach protocols of suicidal and homicidal subjects. In her suicidal group were found the protocols of 43 attempters of varying seriousness and 8 successful suicides. These were compared with the Rorschachs of 48 homicidal and with a group of normal records. The suicidal *vs.* normal analysis yielded information that the suicidal subjects produced fewer R, M, FC, V and P responses and more CF, Y and S responses than the normals. When the suicidal and homicidal protocols were compared, it was found that the suicidal subjects gave significantly more P and M responses. Seriously suicidal subjects had more R, CF, Y and S responses in their protocols than non-seriously suicidal persons. Crasilneck (1954) also compared the records of serious and non-serious suicide attempters. He reported that the protocols of the more serious cases yielded more F+, FC and fewer CF responses than the less serious cases. The Pratt and Crasilneck findings are inconsistent. But it must be noted that Crasilneck utilized suicide attempt Rorschachs from one hospital, while Pratt collected her protocols from a wide variety of sources.

If we examine those studies utilizing psychiatric patients, we find that several determinants (more A, At, fewer R, M, m, C and IRT) appear, but only once. The FC responses appear twice but in opposite directions. If all the determinant studies are considered at once, there appears to be contradictions concerning P, M, C and CF. Only the presence of more S and fewer R responses among the suicidal groups are not contradicted but these results were found only in Pratt's study. This should not be surprising to the reader since the studies described here were different in design. There were a variety of different research methodologies reported (suicidal schizophrenic vs. non-suicidal schizophrenics; mixed diagnostic group comparisons; suicide defined by the commission of an attempt; suicide defined by a ward psychiatrist's judgment; serious vs. non-serious; some studies utilizing matched subjects, others not; etc.). One can see why the results seem contradictory. They are in actuality not contradictory since they are not comparable because of the different research designs. It makes no sense to conclude that the fault for these "inconsistencies" lies with the Rorschach test.

Some of the studies discussed above have reported data on ratio comparisons. It would be expected that the findings concerning the ratios would not be very fruitful since the results of determinant comparisons have not been cause for great celebration. Crasilneck (1954) reported that greater $FY+YF+Y$ ratio scores were found among the more serious suicidal protocols as compared with the less serious suicidal records. This he christened a "deep depression" sign. A ratio in which he compares "deep depression to reactive depression" $(F+\% + TRT + ShWt/TR + M\% + A\%)$ also yielded significant differences. He found that the serious individuals showed more deep depression than their less lethal brethren. The more serious subjects also showed greater positive scores on his "Histrionic" ratio $[FC-(CF+C)\ wt]$ than the controls. This same ratio was characterized as a "Stability" ratio by Hertz (1949) and she reported similar results for her subjects. She also developed a "Sensitivity" ratio $[FCh-(ChF+Ch)]$ on which her suicidal subjects scored significantly higher in the positive direction than her controls.

Single Signs

Some investigators have been interested in a single characteristic (that may involve a determinant) which they feel to be intimately related to suicide.

Sakheim (1955) in his empirical investigation (to be more fully described later) of the then known Rorschach hypotheses about suicide found verification for Beck's (1954) hypothesis of shading shock (indicating oppressive anxiety) in card IV and for Piotrowski's (1950) hypothesis on utilization of "M through animals" (e.g., two ants writing a book) indicative of pessimism and disillusionment with people. Hertz (1949) also reported that her suicidal subjects showed more shading as well as color shock than her controls (through the $FCh-(Chf+Ch)$ and $FC-(CF+C)$ ratios). Fisher's (1951) study of Hertz's ratios did not corroborate her findings. However, evidence for color and shading shock was claimed by Pratt (1951) who reported that her suicidal subjects rejected more of the cards that she felt reflected color shock (II, VIII, IX and X) and shading shock (IV, V, VI and VII) than the controls. The evidence for color and shading shock is difficult to evaluate since its operational definition varies among the investigators.

Sapolsky (1963) basing his research on an interpretation of the "psychoanalytic" hypothesis that suicide represents a wish to return to the womb and desire to be reborn, felt that subjects with suicidal tendencies would be attracted to and utilize the lower center (D6 in Beck's system) on card VII. This location he feels to be the "vaginal area" in the "mother card." He gathered together 28 protocols of neuropsychiatric patients who responded to D6 and then utilized the protocols of 28 other neuropsychiatric patients (matched for age, sex, number of responses, percentage of D responses and diagnoses) who had not responded to D6. The psychiatric histories of these 56 patients were examined for suicidal ideation or behavior. The criterion for suicidality was at least one mention of suicide. Sapolsky reported that there were significantly more "suicidal" histories among the responders than among the non-responders to D6. This study is very interesting. However, any conclusions to be drawn from it should be tentative, since Sapolsky has not presented data indicating that a significant number of suicidal subjects utilize D6, but only that among utilizers of this blot area are to be found a large number of suicidal subjects.

Appelbaum and Holzman (1962) reported success with a single sign composed of shading within a colored area. They felt that any response that combines color and shading regardless of whether form is primary or not is related to suicidal behavior. They examined the protocols of committed and attempted suicides, neuropsychiatric controls, police officers, women with thyroid conditions, psychiatric residents and college girls for evidence of the presence of at least one colorshading response. After a comparison of the incidence of colorshading responses among these records, they reported that the frequency among the suicidal subjects was significantly greater than among the controls. However, Neuringer, McEvoy and Schlesinger (1964) could not corroborate their findings for female commit and attempt suicidal, neuropsychiatric, criminal offender and normal subject records. These two studies are not strictly comparable since different subject populations were used by the investigators.

Aside from the Sapolsky study dealing with the D6 area on card VII, for which the results are highly suggestive but inconclusive, the other studies have concentrated on color and shading either as a shock effect or as a combinatory response. It is difficult to draw any conclusions about color and shading from these investigations because of the various ways it has been formally and operationally defined as well as the presence of non-comparable experimental designs.

MULTIPLE SIGNS

The developers of multiple sign approaches feel that their methodology is bound to be more useful than the determinant and single sign approaches. They argue that the psychodynamics of suicide are so complicated that no single determinant or sign could adequately reflect the many facets of the suicidal phenomenon. They feel that if the researcher could even grasp some of its characteristic expressions, then he stands a better chance of identifying and understanding it in the future. Typically, it is the presence of a certain number of signs that defines whether a protocol is suicidal or not. The actual signs themselves play a subservient role to the overall number of the signs present and the signs may differ from protocol to protocol or may change temporarily in the same individual. Thus cutoff scores, in terms of numbers of signs, play an important role in making inferences about suicide. This approach represents an attempt to circumvent the failure of previous research to uncover reliable determinants or single signs.

Two multiple sign approaches have been developed. Hertz's (1948; 1949) method is based on signs (which she calls configurations) derived primarily from clinical experience. Martin (1951) chose to use a more empirical approach towards developing his set of signs.

On the basis of extensive clinical experience with suicidal individuals, Hertz (1948) hypothesized that self-destructive tendencies ought to be reflected in 14 different ways. These signs were given the following titles: (1) Neurotic Structure, (2) Deep the 7 or more sign cutoff correctly identified 62% of the suicide commit records. They concluded that their study corroborated and further validated Martin's findings.

Weiner (1961) extended the range of applicability of the Martin Signs beyond schizophrenics. He applied the checklist to all the adult patients who had been at a psychiatric service in a general hospital for over six months. Different age, sex, diagnostic and patient statuses were represented. His subject population was composed of 28 males and 43 females. Forty-two of these were hospitalized and 29 were outpatients. Twenty-four of these subjects had made suicide attempts. He concluded that the number of signs were not related to age, sex, number of responses or to in-or-out patient status, but was related to suicidal status and to severity of the diagnosis. He concluded that the Martin Checklist was useful in general for identifying suicidal persons but one should be cautious about cases where the diagnosis is severe. Only two signs (5 and 13) differentiate the suicide attempt and control groups. Neuringer, McEvoy and Schlesinger (1964) were not able to reproduce Weiner's positive results in terms of sex differences.

The Martin multiple sign approach seems to have yielded some interesting and reliable results. There are some inconsistencies, but they can be traced to different subject populations. Certainly more extensive use with the approach is indicated. Hertz's method might have yielded important contributions if it had had more definitional clarity. However, it needs to be pointed out that the multiple sign approach as utilized by Hertz and Martin has some severe limitations. These studies are all "after-the-fact" with protocols of patients who have already committed or attempted suicide and a long-range predictive study is badly needed here.

The multiple sign methodology tends towards only an identification of suicidal persons procedure. This is not to demean the diagnostic task, for it is very important and certainly could help to save lives. But there is little contribution made to the understanding of and teasing out of the psychodynamic variables in suicide. However, neither are the studies of single signs or determinants superior to multiple sign investigations as far as this capacity is concerned.

CONTENT

Studies relating content or responses to suicidality are rare. This is somewhat surprising since content, although it is somewhat subjective and prone to individual difference in interpretation may at times communicate affective states very directly. However, investigators (Osgood & Walker, 1959; Spiegel & Neuringer, 1963) working with suicide note contents found that it was extremely difficult to find examples of explicit statements reflecting suicidal intention or ideation. None of the Rorschach studies of content to be described here report any direct expression of suicidal ideation (e.g., "a man killing himself," etc.). For some reason this direct expression through content seems to be inhibited, and thus suicidal thoughts and intentions remain hidden from the examiner. This is unfortunate since such contents, if they existed, could probably offer the most immediate identifications of suicidal ideas and planning.

Pratt (1951) reported that, when compared to homicidal subjects, suicidal individuals produced more mutilation, abstraction, ice, weapon and fighting responses and fewer blood responses. Fisher and Hines (1951) compared the content productions of a group of hospital job applicants, non-suicidal schizophrenics and suicide attempt schizophrenics in terms of explicit and implicit hostility. Explicit hostility was defined by a response which reflected overt hostility (e.g., "somebody fighting someone") while implicit hostility was characterized by responses which were thought to be more subtle and covert (e.g., "knife," "guns," etc.). Fisher and Hines reported no significant differences between the three groups as far as the production of explicit or implicit hostility responses were concerned.

Broida (1954) attempted to vindicate Lindnar's (1950) hypothesis concerning the suicidal implications of certain kinds of contents associated with card IV. Lindnar felt that this card could reflect suicidal trends if they existed. Suicidal ideation is betrayed, he felt, by such depressive and deteriorating responses as "a decaying tooth," "rotting tree trunk," "pall of black smoke," etc. Broida administered cards I, II, III, & IV to his subjects and also tried to elicit these kinds of responses in the testing of the limits situation if they were not given spontaneously during the performance. He found that 15 per cent of the suicidal subjects gave Lindnar type responses while none were reported for the controls. No significant difference in occurrence of these responses were found in the testing the limits situation.

Perhaps the most comprehensive study of Rorschach contents in suicidal persons was conducted by Costello (1958). He intensively examined the protocols of suicidal attempt and control subjects matched for age, sex, IQ and diagnoses. Costello isolated all content responses that occurred at least 25% of the time. If any such responses occurred twice as often in one group as compared to the other group, they were considered to be typical for that group. The following typical responses for the suicidal group were reported: Card I: Map Responses; Card III: Whole two humans in passive posture; Card V: Winged whole in flight; Card VI: Object response to top detail; Card VII: Map response; Card IX: Man's head response to bottom pink detail; Card X: Whole plant response.

Studies of content are always fascinating because of their direct communication. However, the content communication of the above cited studies is difficult to interpret. Moreover, extreme caution should be exercised here since none of these studies have been validated. Broida attempted to validate Lindner's specific content hypothesis about depression and deterioration, and failed. Fisher and Hines' study was concerned directly with hostility, and found no evidence for an abundance of the variable in suicidal individuals. Neither was hostility found among Costello's protocols to any great degree. However, Pratt found these kinds of responses to be extremely common. However, it should be remembered that Pratt compared her subjects with homicidal subjects, a comparison which may have highlighted certain classes of responses by contrast.

DISCUSSION

A wide variety of studies has been presented to the reader. However, an integration of their results is not a difficult task since few trends were apparent among them. Martin's Checklist results come closest to consistently identifying suicidal persons across varying conditions. There certainly does not appear to have been found any particular determinant, sign, set of signs or content which appears to be associated with suicide under all or even most conditions, i.e., there is no pathognomic sign on the Rorschach for suicide which is so strong that it transcends all the various states of suicidality or the differing conditions under which the test data was elicited. This is not to say that the data derived from the researches described here is not valid. They are valid operationally, i.e., when tied down to the particular conditions under which they were gathered. (Repetition of these studies would certainly strengthen any conclusions that can be drawn from them). It is because of the absence of a single transcendent clue to suicide on the Rorschach that careful notation of the research design and methodology becomes imperative.

Some general remarks may be made about the difficulties confronting the suicide researcher which tend to reduce the effectiveness and fruitfulness of his efforts. Except for one instance, the studies described here have been "paper researches." Protocols of suicidal individuals are found and then analyzed instead of finding suicidal persons and administering the Rorschach to them. As Underwood (1957) has pointed out, a great deal of precision is lost in this kind of methodology because one cannot control many important variables. Unfortunately, the suicide researcher is often forced into this kind of design because the number of available "live" suicidal subjects is severely limited at any given time (Rosen, 1954). Another problem, not unrelated to the above, involves a peculiar statistical artifact in suicide research which may mediate against the appearance of significant results. Neuringer and Kolstoe (1964) reviewed all the known empirical studies of suicide and found that all but one utilized the .05 level of significance. They also pointed out that in suicide research the sample sizes tend to be small, the treatment conditions variable and the controls poor. These conditions mediate against tests of significance approaching the .05 level of confidence. They suggest that these conditions be corrected whenever possible in order not to reject a good hypothesis when in fact it is true. It may be that the Rorschach investigators in the area of suicide have been penalized because they are dealing with a phenomenon whose frequency of occurrence is extremely low.

There are also some general methodological criticism that can be leveled against the various suicide researchers. Without mentioning specific studies, it could be mentioned that confusion as to the conclusions that can be drawn from the data stems often from an omnibus definition of suicidal subjects in which all kinds of subjects (threateners, ideators, committers, attempters, depressed patients, etc.) are lumped together to compose the pool of suicidal protocols. As has been mentioned before, even suicide attempters may be vastly different in terms of motive and psychodynamics. The violation of temporality also has mitigated against the possible emergence of valid and useful data. Rorschachs administered before the suicidal behavior may not be tapping the same areas as those given after the event. And yet, "before" and "after" protocols have been lumped together. In addition, the time span between Rorschach and suicidal event has often been ignored. Farberow and Shneidman (1959) have shown that this is a very important factor in terms of the responses that suicidal individuals give to the MMPI.

It was the author's intention to demonstrate that much of the so-called contradictions concerning the results of suicide research in the area of suicide lay not with the Rorschach but with the research designs and methodologies. Although the methodological difficulties and criticisms already mentioned, either as general statements or as related to the studies reviewed here, have contributed heavily to this equivocality, the greatest share of this is due to the erroneous comparison of non-comparable studies. One cannot conclude that this or that study did not agree or confirm another study, when the designs are vastly different. The results of a study utilizing suicide attempt schizophrenic protocols compared to schizophrenic control records (either matched or unmatched) are bound to be different from a study utilizing mixed psychiatric populations with "suicidality" defined by a ward psychiatrist or a mention in a case history.

Sakheim (1955) has suggested that the paucity of protocols could be circumvented by pooling all of the available data at one central depository. The author would like to further suggest that these protocols be annotated with the subject's history, his suicidal behavior and the conditions under which the protocol was elicited. Even more important than this is the careful documentation of suicidal intent. The usual categorization of ideation, threat, attempt and commit are somewhat artifical and too encompassing. The problem of intent has been worked on by Farberow (1962) and McEvoy (1963). However, the most extensive thinking in this area has been done by Shneidman (1963; 1964). He attempted to relate suicidal intent to general orientations towards life and death. It may be that the application of his new taxonomies to suicidal Rorschach data may open up new vistas.

If the Rorschach is of any value it should detect suicidal trends since vast changes in affect and cognition are presumably involved. And it has yielded some interesting data. Unfortunately, few generalizations can be made because of the variability of conditions under which the data was gathered. Although the suicide rate is small, its impact is great. And since greater coordinated effort towards identification, prediction and understanding of suicidal ideation and behavior is a worthy task there is no reason why the Rorschach test with its many excellent qualities should not be one of the leading weapons in the armamentarium if it is utilized in a judicious manner.

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The Acceptability and Expression of Attitudes Associated to the Rorschach Human Movement Response[1]

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Summary: To test hypotheses based upon psychoanalytically-oriented Rorschach and perceptanalytic (Piotrowski) theories concerning the level of expression, acceptability, type and posture of the figure projected, a questionnaire was devised to elicit associations to their own M by hospitalized male and female schizophrenics and male college students. About half of M have Expressive attitudinal patterns with a slightly greater trend for the Students. Piotrowski's hypothesis that it is useful to differentiate between the "Activity" and the "Actor" who performs it received some confirmation. The thought of performing the Activity is not anxiety-provoking, though with increasing subjective closeness, the less Acceptable are both Actor and Action. The meaning of M seems contingent upon group membership. Of the Ss who identified with their M, Students rated the Activity Acceptable, and the Schizophrenics Unacceptable; the reverse trend was obtained in Ss who did not identify with M. This was interpreted as reflecting the Schizophrenics' less efficient defenses and greater alienation. It was not possible to predict the level of expression of any response through the age, sex, race or posture of the figure, acceptability of the action, or associated Rorschach scores. Various ego-mechanisms and the expression of unconscious fantasies were discussed. It was concluded that the meaning of M is complex and not easily determined from the usual indicators. With the exception noted above, attitudes associated with M did not discriminate between Students and Schizophrenics or between male and female schizophrenics.

Despite the huge number of Rorschach studies, Klopfer (1946, 1954) lists over 1300 in his two bibliographies, there have been few attempts to use the subject's associations to his own percepts as the stimuli of a validation experiment. This study utilizes this procedure to investigate the level of expression and acceptability of attitudes associated to the Human Movement Response (M) of the Rorschach Test (1942).

Projective test responses reflect at least six different dimensions of behavior (Parker, 1962): External stimuli; stable intellectual characteristics of the responder; personalized defensive processes; stable organization of the personality; temporary states; and, content of the person's experience. The development and nature of M-perception in particular is quite complex (Parker, 1959, pp. 12-46). For example, empirical studies of motor expression have implicated M in: motor inhibition; control under stress; and, motor style. The most recent studies have been by: Spivack, Levine, Fuschillo and Taverner (1959); Gold-man and Herman (1961); and, Rosenthal (1962).

One might assume from the following quotation that Rorschach (1942, p. 29) believed that interpretations based upon the posture of M would be useful in predicting observable aspects of behavior.

> Subjects who see extension movements are active individuals with strong drive towards self-assertion though they often show neurotic inhibitions. Those who see flexion move-

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[2] The data were collected while the author was on the staff of the Manhattan State Hospital.

> ments are passive, resigned and neurasthenic individuals. . . .

However, Piotrowski (1957, pp. 131-132) suggested that Rorschach "had nothing of the kind in mind", since in a variety of ways he referred to Ss whose experience type was introversive as relatively inactive motorially (Rorschach, 1942, pp. 72-93). The activity implied by M-content refers primarily to the S's attitude towards his own introversive tendencies: The S with active M struggles against his introversion, while the S with passive M "surrenders himself to his imagination (p. 123) . . . " Subsequently, Rorschach appended to the *Psychodiagnostics* a case history of a patient in analysis with Oberholzer. In a personal communication regarding Oberholzer's explication of Rorschach's test analysis (p. 212), Piotrowski commented as follows:

> What was the most profound source of yearning to a Freudian of 1922? The unconscious, of course. The striving was there but it was unconscious, or to be more exact, the 'living out' of the striving took place in the unconscious. The reason why the Rorschach-Oberholzer article says nothing about the patient wanting to be powerful ('power' was the content of the abstract responses, RSP), was that Rorschach said then, for the first time, definitely, that only the M and the color responses revealed unconscious tendencies (p. 206). The abstract responses were scored as F, and the F were representatives of the conscious mental functions according to Rorschach.

Referring particularly to Case #3, (Rorschach, 1954) Piotrowski noted that the unconscious was considered by psychoanalysts in 1921-1922 to be a disrupting force.

Acceptable Action Tendency:

We utilize Piotrowski's definition (1957, p. 152).

> An action tendency which the individual feels is a genuine, important, and lasting aspect of his personality . . . which he is ready to act out without delay or disguise whenever the external social or physical conditions are favorable. An 'unacceptable action tendency' is one which . . . causes him anxiety, which he finds not to be wholly desirable, and which he would like to modify if not wholly eliminate.

Beck (1949, pp. 92-93; 1952), accepts Rorschach's concept of M as representing unacceptable wishes, similar to the content of the Freudian unconscious, or expressed in fantasy, while Klopfer (1954), stated that they represent acceptance of one's drives. Piotrowski (1957, p. 176) and Dr. Fred Brown (personal communication) disagree with Klopfer's ignoring M with pathological content. The experimental literature is meager and controversial (Parker, 1959, p. 42). Wagner's study (1961) suggested that measured anxiety (IPAT as the criterion), is contingent upon the presence of both aggression and anatomy responses in human or animal movement.

Level of Expression:

Rorschach stated that the M-type shows "insufficient adaptability to reality (1942, p. 81)." Piotrowski's opposing hypothesis, i.e., that qualitative analysis of M reveals the manner in which the S has adapted to reality, is the primary theoretical basis for this study.

> One cannot develop a fundamental attitude without having stirring experiences and without some idea of what reality is like . . . (1950, p. 51). The M stands for the most individual and integrated strivings which dominate the individual's life. Thus the M indicates traits stabilizing the relation between the individual and his environment (1957, p. 141).

Piotrowski defines the "role in life" as "a definite tendency, deeply embedded in the subject, and not easily modified, to assume an unchanging attitude or attitudes when dealing with others in matters recognized by the individual as vitally important to him . . . (1950, p. 50)." The three main roles, of which he may or may not be aware, are self-assertion, compliance, or indecisiveness (Piotrowski, 1957, pp. 156-160). Schachtel (1950) expressly disagreed with Piotrowski (see the latter's rejoinder, 1957, p. 175) and stated that "the general quality of the movement cuts across, and is often more important than the general classification in stretching and bending movements." Studies of M-posture do not reveal any unified trend: Mirin (1955), Brecher (1958), Ames (1952), Stein (1956), and Thetford (1952). M-posture does not discriminate male homosexuals from controls (Hooker, 1958), and seems independent of the perceived age, sex, and race of the figure (Parker, 1963).

Empirically, M seems to have a variety of meanings, e.g., in the areas of parental and authority figures (Hirschstein & Rabin, 1955), verbal correlates (Okarski, 1958), and general enrichening of response (Levine & Spivack, 1962). When M-perceivers (see below) were asked to associate to their M, none of the following alternatives were selected as descriptive by more than 9% of each sample: Action or potential; daydream; most people are like this; a particular person; seen in real life; read about or from a movie; wish; fear; none (Parker, 1959, 1963). In most cases, M was considered more descriptive of the environment than of the self.

ASSUMPTION

It is assumed that action tendencies can be placed upon an Expression-Suppression continuum, which has the following characteristics:

a. It is composed of several overlapping components;
b. it is bi-polar;
c. each end of the continuum has these characteristics:

Expressed

1. Acceptable
2. Meaning of behavior available to awareness
3. Behavior is acted out
4. Willingness to communicate

Suppressed

1. Unacceptable
2. Meaning of behavior unavailable to awareness
3. Behavior not acted out
4. Unwillingness to communicate

SUBJECTS AND PROCEDURE

See Parker (1959, 1963) for complete details.

Schizophrenics: Thirty males and 30 females from Manhattan State Hospital — mean age: 31-4; median years of education: 12; mean WAIS Vocabulary I.Q. (Wechsler, 1955) where not high school graduate: 120; mean length of hospitalization: (males) 3-0, (females) 1-5.

College Students: Thirty males from Elementary Psychology Class, University College, N.Y.U.

The Rorschach and Inquiry were given in the usual way to the patients; only Plates I, II, III, IV, and VII to the Students. Where two or more Ms were perceived, one was selected through use of Edwards' (1950) table of random numbers. Then, the complete M-Questionnaire was administered (Parker, 1959, pp. 166-168). The reader is referred to the Dissertation for discussion of problems of sampling and cooperation with the Schizophrenic patients (pp. 66-71).

ABSTRACT OF M-QUESTIONNAIRE

1. How old is this person?
2. Does this person look more like a male or a female?
3. Is this person the same race as you are, a different race, or doesn't the race matter?
4. How do you feel about what he (she, they) is (are) doing?
   a-c Degrees of affirmation
   d-f Degrees of dislike
5. Is this something that you would like to do?
   a. Enjoy; b. Enjoyment & anxiety; c. Would not like to do, but no anxiety if act is performed; d. Would not like to do and anxiety
6. How would you feel about such a person as you saw in the inkblot, if you were to meet somebody like that?
   a-b Would like to meet
   c-d Would not like to meet
7. How would you like to be a person like this?
   a-b Yes c-d No
9. (Where one person does something to another). How would you feel if this were

done to you?
   a. Like b. Dislike

10. Whom does this remind you of?
    a. Myself
    b. Some other person whom I know . . . Who? . . .
    c. Both myself and another person . . . Who? . . .
    d. Nobody
    e. Other.
11. How much are you like what you saw on the inkblot?
    a-c Degree of similarity
    d-f Degrees of dissimilarity
12. If the person whom you saw on the inkblot reminded you of some person you know, how much are you like this person?
    a-c Degree of similarity
    d-f Degrees of dissimilarity
13. What would best describe your feelings towards this person?
    a-c Degrees of affection
    d-f Degrees of dislike
14. Have you ever thought about being like that person?
    a. Yes b. No
16. If you forgot about whether it is a good or bad thing to do, would it be possible for you to do what you have seen on the inkblot?
    a. Yes b. No
17. If you were to do what this person (or persons) did, would you feel nervous or guilty?
    a. Yes b. No
18. Have you ever thought about doing what is being done on the inkblot?
    a. Yes b. No
20. Have you ever done this?
    a. Yes b. No
21. How do you feel about talking to the psychologist about this?
    a. Like b. Dislike

EXPRESSION-SUPPRESSION SCALE

The S's attitudes were categorized as "Expressed" or "Suppressed" according to the pattern of responses to these four items (see above, *Assumption*):

Item	*Expressive*	*Suppressive*
4. Acceptability Scale	Affirmation	Dislike
11. Similarities Scale	Similar	Dissimilar
20. Action Tendencies	Has Done	Has Not Done
21. Communication	Willing	Unwilling

When the four items are dichotomized, 16 combinations are possible. These were typed on separate pieces of paper and together with a copy of the procedure were given to three clinical psychologists to rank in order of Expression-Suppression. The writer was available for questioning. The three inter-judge rank-order correlations were averaged by a z' transformation for the 16 combinations, and for 14 combinations excluding the two polar anchor points (see above). The average inter-judge rho was +.87 (16 patterns) and +.79 (14 patterns), both significant at .01, indicating acceptable inter-judge reliability.

A four-point scale of Expression-Suppression was formed, based upon the average rank, from the four combinations in each quartile.

SCALE OF EXTENSION-FLEXION

A rough Scale was devised (see p. 170 of Dissertation) based upon descriptions and examples in *Perceptanalysis* (Piotrowski, 1957). Four clinical psychologists were each given a copy of the Scale, then E read the responses to them, and individually they assigned the response to a category with a numerical score. The latter was summated algebraically (Extension +; Blocked 0; Flexion −). The E-F score was based upon the four pooled judgments.

TESTS OF HYPOTHESES

Hypotheses la-lb: All M is Suppressed; all M is Expressed.

Conclusion: Since the patterns are about equally distributed as Expressed and Suppressed (Table II) and many percentages are in an Expressive direction (Table I), we may conclude conservatively that according to our criteria, about half of M-attitudes are Expressed. Sixty-three per cent of the Students and 47% of the Patients state that they have performed the activity. E-S scores were associated with statements by Ss that they (would): 5A – Like to perform the activity (a & b vs. c & d, Students); 5B – Not experience anxiety were they to perform the

TABLE I—Responses to Relevant Part of M-Questionnaire
(Parker, 1959, pp. 77-78)

Item		Subjects Stud. %	Males (30) P#	Hosp. %	Schiz. (60)[a] P
1-3	(See Parker, 1963)				
4.	Approves Activity	73	.02	83	.001
5A.	Would dislike activity	63	N.S.	52	N.S.
5B.	Activity would not provoke anxiety	83	.001	83	.001
6.	Would like to meet figure	80	.01	73	.001
7.	Would dislike resembling	53	N.S.	58	N.S.
9.	Dislike being recipient	67	N.S.+	70	N.S.+
12.	Identifies with known figure (a)	63	N.S.+	50	N.S.+
13.	Positive feeling to known figure	100	N.S.+	67	N.S.+
14.	Identifies with known figure (b)	50	N.S.+	50	N.S.+
16.	Possible to perform activity	87	.001	80	.001
18.	Thought of performing activity	53	N.S.	40	N.S.
20.	Has performed	63	N.S.	47	N.S.
21.	Likes discussing	83	.001	70	.01

# Chi Square corrected for continuity
+ Too few cases to test deviation from even split
[a] No significant difference between males and females

TABLE II—Distribution of Expression-Suppression Scores

E-S Category	Male Students	Group Male Schizophrenics	Female Schizophrenics	Totals
I	15	14	9	38
II	4	2	5	11
III	6	14	12	32
IV	5	0	4	9
	30	30	30	90

X^2 (I+II vs. III+IV) = 1.62 (N.S.)

TABLE III—Relationship Between Expression-Suppression Score and Responses to M-Questionnaire
Only significant associations presented
(See Parker, 1959, pp. 100-101)

Item	Response Associated With Expression	Probability Students	All Schizophrenics
4#	Acceptable-Unacceptable	N.S.	N.S.
5A	Wants to perform activity (a;b vs. c;d)	.025	N.S.
5B	No anxiety upon performing act (a;c vs. b;d)	.046*	N.S.
7	Would like to resemble	.001	N.S.
11#	Rates Self Similar	.01	N.S.
16	Possible to perform	.012*	N.S.
18	Has thought of doing	.10	.001
20#	Has done	.001	.001
21#	Likes Discussing	.048	.025
19A	Alternative Rated Best Description		
	1. Performed or considered	.05	.10
	6. Read about; movies; TV	N.S.	.05

# Item is part of E-S pattern
* Exact estimate of P

activity (a & c vs. b & d, Students); 7 — Like to resemble the perceived figure (Students); 11 — Are similar to the perceived figure (Students); 15 — Find it possible to perform the activity (Students); 18 — Had thought of performing the activity (Students and Schizophrenics); 20—Have performed activity (both groups); 21 — Like discussing activity (both groups); 19A —

Had read about or saw in movies or on TV.

E-S scores were not associated with these characteristics of the response; P vs. non-P (26 of 30 M were P in Students); Posture (see Table VI). Location (26 M were whole responses in Students); Color vs. Black or Black and Red Plates; Human vs. Human Detail; Plate III vs. all others; age, number and length of hospitalizations in the Schizophrenics.

Hypotheses 2a-2d: Degree of Acceptability of M-attitude.

Conclusions:

1. It is useful to conceptually separate the "Activity" from the "Actor" that performs it (as predicted by Piotrowski, see Parker, 1959, p. 138).
2. While the thought of performing the Activity is not anxiety-provoking in a majority of cases, with increasing subjective closeness, the less Acceptable are both Actor and Action.

Considering Action (Item IV), we find that 73% of Students and 83% of Schizophrenics rate it Acceptable, though when asked whether they would themselves like to behave like their M (Item 5A), the percentages are reduced to 37% and 48%. When the Actor is the independent variable, 80% of Students and 73% of Schizophrenics would like to meet such a figure (Item 6), though only 47% and 42% respectively wanted to resemble him (Item 7).

A few minor (and perhaps basically unreliable associations in terms of the dozens computed) were: (1) The tendency for the students to state that they would dislike meeting an older figure (Items 1 & 6, P = .009), and (2), the Schizophrenics responded with Anxiety when they perceived a figure whose race was different or don't know (Chi Square, P = .05, Items 3 & 5B).

Hypothesis 3: Those M with which the S identifies (rated Similar) will be rated higher for Acceptability than those M with which the S does not identify (rated Dissimilar).

Hypothesis 4: M-responses identified as other figures will be rated Unacceptable.

TABLE V—Acceptability and Identification (combined items 10 & 11)

	Percentage Students	Schiz.
Like Self—Acceptable	21	15
Like Self—Unacceptable	3	7
Unlike Self—Acceptable	52	68
Unlike Self—Unacceptable	23	10
	99	100

Chi Square based upon original data: 8.49, P=.02—.05, 3 df

Conclusion: Acceptability is a response contingent upon both whether there is identification with the figure and the presence/absence of schizophrenia (see Tables IV & V). Concerning those Ss who identified with their M, if they rated the Activity Acceptable, they were likely to be Students; if they rated it Unacceptable, they were likely to be Schizophrenics. Among the Ss who rated the M Unlike-Self, if they found it Acceptable

TABLE IV—Relationship Between Per Cents of Acceptability Ratings of Perceived Activity and Identification with Perceived Figure

Identification of Figure	Attitude Towards Activity: Students Accept.	Students Unaccept.	Patients Accept.	Patients Unaccept.
Item 10				
Self	10	3	7	7
Not Self	64	23	76	10
	P=N.S.		Exact P=.029	
Item 11				
Similar to Self	33	3	23	7
Dissimilar to Self	40	23	60	10
	Exact P=.0965		P=N.S.	

they were likely to be Schizophrenics, and if Unacceptable, likely to be Students. Most Ss perceive the figure as Unlike-Self (see Parker, 1963).

Hypothesis 13: Extensor M are indicative of better prognosis.

Conclusion: Tentatively rejected. No relationship was observed between total months of hospitalization and Flexor-Extensor Score.

Hypothesis 14: Non-Schizophrenic Subjects perceive more Extensor M than Schizophrenic Subjects.

Conclusion: Partially confirmed — Students received scores higher at the .05 level than Male Schizophrenics (corrected for multiple r of +.24 between F-E score and years of education and age).

Table VI—Relationship Between Flexion-Extension Scores and Expression-Suppression Scores

	Mean Flexion-Extension Scores		
E-S	Male Students	Male Schiz.	Female Schiz.
I	+1.96	—0.17	+2.44
II	+1.38	0.00	+0.70
III	+4.08	—1.39	+4.04
IV	+4.60	—	+4.38
Total	+2.70	—0.65	+2.00
S.D.	5.38	5.80	5.78

Chi Square test of Association between E-S and F-E was insignificant when F-E trichotomized (—8 to —4; —3.5 to +3.5; +4 to +8) and S-E dichotomized (I+II vs. III+IV) for combined three groups (2.05) and combined Male Student and Female Schizophrenic (2.8). See Parker, 1959, p. 98.

Hypotheses 15 - 17: Expression of manifest M-attitude is more likely if the figure is relatively near the chronological age, or the same sex, or the same race, as the subject.

Conclusion: Tentatively rejected. None of these variables seemed related to the E-S patterns.

Discussion

The controversy as to whether M-attitudes are overtly expressed may be focused by contrasting inferences based upon the psychoanalytic theory that fantasy represents displaced and distorted wishes, and Piotrowski's concept that to the extent that M resembles the perceiver, the greater is the likelihood that its associated attitudes will be expressed.

a. Psychoanalytic:

1. *Lack of Awareness:* The Ss generally regard the M as Dissimilar to themselves. Thus, to a large extent the findings are consistent with the concepts of repression and "the Unconscious."

2. *Fixation:* The perceived age was not consistently younger than the S.

3. *Non-verbal:* "Repression denies to the rejected idea the translation . . . into words which are to remain attached to the object . . . (Freud, 1948B, p. 134)." Typically, the Ss were unable to describe their figure in great detail, or to provide a rich background of fantasy or association to it.

4. *Primary Process:* Unconscious fantasies are luxuriant, bizarre and unrealistic (Freud, 1948A, p. 87). The M were typically realistic. Only one M out of 90 (from a patient) was of inaccurate form.

5. *Anxiety:* The unconscious attitude develops a strength of expression which is "terrifying" to the subject, or may represent a "source for the release of anxiety (Freud, 1948B, p. 115)." A large majority of Activity was actually rated Acceptable, desirable to perform, or at least non-anxiety-provoking.

6. *Derivatives will appear in consciousness through the process of substitute-formation and displacement:* Freud (1948A, p. 88) asserted that resistance to impulse-derivatives is in "inverse proportion to their remoteness from what was originally repressed." The formal qualities of the figures (age; sex; race) were neither directly nor inversely associated with the attitudes related to M under study. (The possibility remains that the Activities themselves are displacements, and/or that only some M-tendencies are expressed and these become displaced).

b. Perceptanalytic:

1. *M Represents observable behavioral trends:* About half of the sampled M-attitudes seemed to be experienced in Expressive patterns. In four additional cases (Items 16, 18, 19A, 19B), the Students also had a higher proportion of "Expressive" responses (P for 5 cases = .031).

2. *M is more likely to be expressed if it resembles the perceiver:* No association (see a-6 above).

The precise behavioral implications of various types of M remain very obscure. There were no significant differences between male and female schizophrenics in original data (Table I) or between male students and male schizophrenics. No hypothesis concerning the relationship between the perceiver and the formal characteristics of the Actor, nor predictions concerning the degree of Expression of most M received unqualified support. Furthermore, Students more often than Schizophrenics rate themselves as Similar to their M, although they perceive figures which are objectively more Dissimilar (Parker, 1963). Finally, there is a contingent relationship between perceived Similarity (Items 10 & 11, Tables IV & V), Acceptability (Item 4) and presence/absence of hospitalization for Schizophrenia.

We may conclude that: (1) It is necessary to abandon the classical assumption that M refers exclusively (or perhaps directly) to unconscious attitudes; (2) the Schizophrenic group utilizes different criteria for identification with M than the Students. While the data do not provide clearcut criteria for prediction of either Expression or Identification with M, the above trio of responses probably reflects both the greater decompensation of defenses against low self-esteem and the greater self-alienation in the schizophrenic.

For methodological and theoretical reasons, it is useful to compare these results with other studies. As noted above, Wagner (1961) has also isolated a test factor whose identification is contingent upon the presence of two other measures. King (1958) determined that various attitudes vary with number of M. Holzberg (1963) obtained an interaction between sex, presence/absence of schizophrenia, and attitudes in a study of normal and schizophrenic males and females. In contrast to the lack of sex differences found in the present study, Holzberg found attitudes which differentiated the female schizophrenic, and that among the females, there were analogous reversals of attitudes (towards the self and parents) dependent upon whether the *S* was schizophrenic or not. This objective evidence adds weight to the clinical impression that M-attitudes are complex. It is recommended that future validation studies must include a variety of external criteria.

What does M measure qualitatively? Referring to posture, a greater feeling of comfort may be hypothesized in those *S*s who perceived extensor M, since as a group they tended somewhat (P=.10) to rate Activity as Acceptable, and in addition, the Male Students had higher ratings than Male Schizophrenics (.05). With regards to dynamic mechanisms, the pattern of responses seems to suggest that several mechanisms may be implicated. For example, in 23% of the Students and 10% of the Schizophrenics, the pattern of Unacceptability and Unlike Self suggests projection. The most frequent rating of Dissimilar though Acceptable recalls Sears' (1936) distinction between projection and contrast formation (*S*s having insight into unacceptable traits by contrast attribute its opposite to others). Another ego-defense, reaction formation (converting an undesired attitude into its opposite) can be hypothesized to account for some of the Acceptable-Like Self items, if it is assumed that the basic attitude is unacceptable. The test would be the acting-out of the attitude whenever possible, and without experiencing anxiety.

Further research will be required to elucidate the relationship between M and "the role in life." Since M tends to be attributed to the outside world (Parker, 1963), we must ask this question: How is the *S*'s behavior related to his projective percept of people?

Another serious question involves the general lack of reliable difference of measured attitudes between such different groups as hospitalized Schizophrenics and College Students. Difficulty in discriminating patterns of intellectual functioning was also found in similar samples (Parker, 1964).

It has become apparent that external criteria of "the vicissitudes of the instincts" (various levels of experience) between the Unconscious and fully-aware expression are required to validate the qualitative meaning of M. In the next phase of Rorschach research, the role of concepts like M should be reversed so that they become dependent variables, in addition to being considered as independent variables or criteria by which other behavioral data are evaluated.

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Primary and Secondary Process Thinking in Two Types of Schizophrenia[1]

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Summary: Rorschach responses of 36 process and 23 reactive schizophrenics have been evaluated for presence of primary and secondary process thinking, and for oral, anal, sex, aggression, and anxiety content. Responses of the process schizophrenics involved more primary process than secondary process thought, whereas the reactive schizophrenics' responses showed more secondary than primary process thinking. A linear trend, parallel for both groups, was noted with regard to frequency of content responses, such that anxiety was greater than aggression, which was greater than oral, which was greater than sex and in turn was greater than anal. In both groups oral content was least invaded by primary process thinking, the remaining categories tended to cluster.

The study of schizophrenia in recent years has produced a large bibliography in the literature relating diverse factors to onset, prognosis and treatability. One facet has been the process-reactive criterion where different life histories, physiologic responsivity, difference in genetic aspects of perception, central nervous system pathology, social competence and even modes of psychotherapy have been investigated. The dimensions of process-reactive schizophrenia seem closely related to Bleuler's early work on typical and atypical schizophrenia. Bleuler (1911) and Benjamin (1948) first using the Rorschach, as well as other investigators applying a variety of procedures (Kantor, Wallner and Winder 1955, Stotsky, 1956, Wittman, 1941, 1944) have identified the process schizophrenic as a person whose primitive adjustment level is easily identified by his social, economic and sexual life history where autistic logic, failure to interact with peers and a lack of precipitating factor in the illness is present early in life. The reactive schizophrenic has characteristically shown adequate social, economic and sexual adjustment until the time of an acute onset of illness. The authors in a previous investigation (Fine and Zimet, 1959) have attempted to relate these dimensions of schizophrenia to differences in maturity of the perceptual process as reflected in Rorschach responses. This was theoretically tied up with a concept of genetic psychology and the psychoanalytic theory of thinking.

The present investigation is an attempt to apply more directly psychoanalytic ego psychology to the understanding of the thought process and content expression in two groups of schizophrenics identified as process and reactive. Thought process may range from primitive, physiognomic, autistic, diffuse and syncretic to developmentally advanced, realistic, differentiated and hierarchically organized. Freud conceptualized this gradation of thinking in terms of primary and secondary process. Secondary process being under ego control is predicated upon a delay of immediate discharge of impulses, it seeks indirection and detours appropriate to an individual's life situation. It is essentially reality oriented, reflects and maintains a boundary between self and not-self. Primary process thinking, on the other hand, is organized around drive discharge, is indifferent to reality and logic, it is fluid, undiscriminating and unreflective. It ignores causality and tends to fuse self and not-self and like dreams may be composed of condensation and displacement.

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Another aspect of the Rorschach response process that may be evaluated is the drive imagery. One of the assumptions made in the psychoanalytic theory of thinking is that drives are in part (also logic and external reality) responsible for the organization of all thought and perception. Holt points out that such imagery is not part of goal oriented behavior on the Rorschach, but there is "evidence that the drive is organizing the response . . ." (Holt and Havel, 1960, p. 271). For the purpose of evaluating the direction of the drive five content categories devised by Holt are used in this study: 1. drives with oral aims, 2. drives with anal aims, 3. drives with sexual aims, 4. drives with aggressive aims and 5. thematic indications of guilt and anxiety.

The basic theme of the present investigation is to evaluate the quality of thought and thought disorder and to study the preferred modes of content expression in the two groups of schizophrenics.

Hypotheses: The specific hypotheses may be stated as follows: 1. Process schizophrenics will present more responses reflecting primary process thinking than reactive schizophrenics. 2. Reactive schizophrenics will present more responses reflecting secondary process thinking than will process schizophrenics. 3. Within the process schizophrenic group more primary process level responses than secondary process level responses will be given. 4. Within the reactive schizophrenic group, more secondary than primary process responses will be given. 5. In the process schizophrenic group there will be no difference among the five content categories (oral, anal, phallic, anxiety, and aggression) as to degree of intrusion by primary process thinking. 6. In the reactive schizophrenic group, oral and anal content will show less intrusion of primary process thinking than sexual, anxiety, and aggression content. 7. On an Index of Disordered Thinking (IDT) process schizophrenics will receive a greater number of scores than will reactive schizophrenics.

METHOD

Subjects: The Rorschach records of 59 patients were examined: 23 of these were diagnosed as reactive schizophrenics, 36 as process schizophrenics. The patients were all World War II veterans who had been admitted to a V.A. Psychiatric Hospital over a one year period. All patients with a diagnosis of schizophrenia who had been tested with the Rorschach were included in the study. Patients whose diagnosis of schizophrenia was modified by such terms as "latent" or "borderline" or where multiple diagnoses were involved were excluded. No statistically significant differences were noted between the two groups in the number of Rorschach responses although there is a two response difference, the process group giving a mean of 9.5 and the reactive group a mean of 7.3 responses. The Wechsler Bellevue mean IQs of 102.5 and 105 for the process and reactive sample respectively were not significantly different. The mean ages for the process and reactive groups were 33.9 and 33.2 and the age ranges were 56 to 19 and 51 to 19 respectively.

Process-reactive grouping: The classification of reactive or process schizophrenia was based on life history information alone, without knowledge of the clinical symptomatology of the patient or consideration of any test data. The criteria for process schizophrenia involve some of the following: early psychological trauma, severe physical illness in the first five years of life, difficulties at school, introverted behavior, overprotective or rejecting mother; in adolescence, a lack of heterosexuality, insidious onset of psychosis without pertinent stress and lengthy stay in hospital; in adulthood, massive paranoia, little capacity for alcohol, somatic delusions, awareness of change in self, etc. The criteria for reactive schizophrenia were: a good developmental history, the onset of psychosis, if it occurred, was sudden and related to pertinent stress with short hospitalization; in adulthood, minor paranoid trends, success in spite of adversity, absence of somatic delusions, capacity for alcohol, etc. On the basis of this information subjects were reliably differentiated into process and reactive groups ($p<.01$) by two judges, both experienced clinicians, working independently. Those subjects on whom there was not complete agreement by the judges were excluded (27 out of 86 patients).

Rorschach analysis: The method of analyzing Rorschach protocols follows, albeit in a very much modified manner, Holt's method for assessing primary and secondary process in the Rorschach (1956, 1960). This procedure consists of three groups of scoring categories, two of which were applied in this study: 1. content variables and 2. formal variables. The former category takes into account drive domination within the content of the response whereas the latter is related to deviations in the response structure. The content variables deal with primitive (primary process) and controlled (secondary process) drives related to A. oral, B. anal, and C. sexual perceptions, D. drives involving aggressive aims and E. thematic indications of anxiety and guilt. For example, a response on Card VIII "Looks like some kind of broken flesh" was scored: Primary process, aggression; the response to the upper red areas on III "These look like a stomach of some kind" received a score of secondary process, oral.

The formal categories usually described under the qualitative column of a Rorschach summary combine the perceptual organization of the response as well as the thought process that underlies it. Although Holt included pathological as well as nonpathological categories and warned that these categories not be taken evaluatively, we have included those that reflect disordered thinking. The variables included here are generally accepted as pathological and their appearance was rated in each protocol. They comprised: A. confabulation, B. contamination, C. peculiar verbalizations, D. fluidity, and E. perseveration (this was scored after three like responses were given) and to differentiate them from Holt's variables were placed under the label: Index of Disordered Thinking (IDT).

A score for any response might combine level of thought process, area of content and presence of a perceptual-thought disturbance to read, for instance: Primary process, anal, confabulation. Not all categories may be applicable to a response, thus "a butterfly" on Card V would be limited to a secondary process score.

Reliability: The protocols were evaluated independently by two scorers on level of thought and content category. The percentage of agreement on these scores was 93%. The degree of congruence in determining the precise category under IDT was 71%. When no distinction was made among the five IDT categories, agreement rose to 88%.

RESULTS

Process Schizophrenic Group: Process schizophrenics give significantly more primary process than secondary process thinking responses ($p<.005$). When each of the five content categories (oral, anal, sex, anxiety, aggression) is examined as to primary and secondary level of thinking there is a significant difference in the direction of primary process in all categories with the exception of the oral responses where the significance level is at .10 (Table I). Analysis of variance reveals significant differences among the five content categories when primary and secondary thought levels are combined (p trend $= .005$). Ninety-four percent of the variance due to content is accounted for by a

TABLE I—Process and Reactive Group *t*'s Between Primary and Secondary Process

	Process		Reactive	
	t	*p*	*t*	*p*
Oral pri. vs. Oral secdy.	1.34	.10	3.70	.001
Anal pri. vs. Anal secdy.	2.03	.025	.99	NS
Sex pri. vs. Sex. secdy.	1.72	.05	1.68	.05
Aggressive pri. vs. Aggressive secdy.	3.22	.0025	.77	NS
Anxiety pri. vs. Anxiety secdy.	3.05	.0025	2.22	.025
All combined pri. and secdy.	3.12	.0025	3.21	.0025

linear trend, so that the frequency of anxiety responses is greater than oral, which is greater than sex, which in turn is greater than anal. Such a linear trend is significant at the .005 level (using weights of 2, 1, 0, −1, −2).

Over and above differences in frequency of content (oral, anal, etc.) and level (primary and secondary), there is an interaction which suggests that different amounts of primary process are utilized in expressing the content variables. Oral and to a lesser extent sexual content are less infused by primary process thought than the anal, anxious and aggressive contents. The percentage of responses within each category being of primary process nature is as follows: Oral – 30, Anal – 75, Sex – 66, Aggression – 76, Anxiety – 78.

Reactive Schizophrenic Group: Reactive schizophrenics give significantly more secondary than primary process responses ($p<.005$). When each of the five content categories is examined as to primary and secondary thinking process, significant differences are in evidence within the oral and anxiety categories in the direction of secondary process thinking, no significant statistical differences are found in the anal and aggression categories (Table I).

Analysis of variance reveals significant differences ($p<.01$) among the content categories when primary and secondary levels are combined. Ninety-five percent of the variance is attributed to differences between types of content which is accounted for by linear trends so that the frequency of anxiety is greater than aggression, aggression greater than oral, oral greater than sex, sex greater than anal. There is a significant interaction between primary and secondary thought level and content category. The percentage of primary process responses within each of the content categories is as follows: Oral: 3, Anal: 33, Sex: 31, Aggression: 43, Anxiety: 29.

Comparison of Process and Reactive Schizophrenic Groups: Analysis of variance reveals that the process schizophrenic group produces significantly more primary level thinking responses than the reactive schizophrenic group ($p<.001$). Conversely the reactive schizophrenic group produces significantly more secondary level responses than the process schizophrenic sample ($p<.001$).

As a next step we examined the number of responses given in each of the five content areas, without regard as to primary and secondary level. The results reflected the above findings; in each category the process group gives more responses, but only on anal content is the difference statistically significant ($p = .05$) (See Table II).

When the process and reactive groups are compared on each content category and level (i.e., oral primary level, process schizophrenic group versus oral primary, reactive group; oral secondary level, process schizophrenic group versus oral secondary level, reactive schizophrenic group), the process schizophrenic group produces significantly more primary process thinking responses significant beyond the 5% level of confidence in each of the five primary process level content categories as seen on Table III.

TABLE II—Content Category t's Between Process and Reactive Groups*

Content		$\bar{X}$	t	p
Oral:	Reactive Process	1.39 1.83	1.0	NS
Anal:	Reactive Process	.13 .67	2.35	.05
Sex:	Reactive Process	1.09 1.39	1.0	NS
Aggr.:	Reactive Process	2.00 2.69	1.0	NS
Anx.:	Reactive Process	2.22 2.97	1.23	NS
Total:	Reactive Process	6.82 9.55	1.24	NS

*Without regard to primary or secondary process

Responses reflecting secondary process thinking in each of the five content categories show no significant differences between the groups with the exception of anxiety where the reactive schizophrenic group gives significantly more ($p = .001$).

INDEX OF DISORDERED THINKING

The records were scored for the occurrence of confabulation, contamination, fluidity, perseveration, and peculiar verbalization. Confabulation here is defined as extensive and arbitrary associative elaboration without objective support (Schafer 1954, p. 188). These categories were combined into an Index of Disordered Thinking (IDT) since there were not enough scores to make statistical tests on each of the items. In a test of the differences of means that was computed between the process schizophrenic and reactive schizophrenic groups on the IDT, the process group produced more disordered thinking than the reactive group, significant at the 5% level of confidence.

DISCUSSION

Hypotheses 1-4 were clearly substantiated by our findings. Process schizophrenics show a greater disposition than reactive schizophrenics towards more archaic, drive dominant thinking in which energy usually available for adaptive thought functions

TABLE III—Process-Reactive t's for Content Category and Level

Category		Group	$\bar{X}$	t	p
Oral:	Pri. Pr.	Proc. React.	1.28 .04	1.88	.05
	Secdy. Pr.	Proc. React.	.56 1.35	.63	NS
Anal:	Pri. Pr.	Proc. React.	.50 .04	2.47	.05
	Secdy. Pr.	Proc. React.	.17 .09	1.00	NS
Sex:	Pri. Pr.	Proc. React.	.92 .35	1.70	.05
	Secdy. Pr.	Proc. React.	.47 .74	1.20	NS
Aggr.:	Pri. Pr.	Proc. React.	2.06 .87	2.14	.05
	Secdy. Pr.	Proc. React.	.64 1.13	1.28	NS
Anx.:	Pri. Pr.	Proc. React.	2.22 .65	2.72	.01
	Secdy. Pr.	Proc. React.	.75 1.57	3.84	.001

is tied up in myth, fantasy, in aggressive and libidinal conflicts and the direct gratification of the pleasure principle. In contrast the reactive schizophrenics utilize to a greater extent logic, delay, modulation and reality testing. In other words, there is less ego control exhibited in the process schizophrenic than in the reactive schizophrenic. This is further attested to by the results to hypothesis #7, namely that process schizophrenics give a significantly greater number of responses on the Index of Disordered Thinking. In a previous paper (Zimet and Fine, 1959) it was suggested that high genetic level scores were similar to secondary process thinking, whereas low genetic level scores reflected primary process thought. The results of the present study substantiate these findings. Becker (1956, 1959) drawing on the work of Baldwin (1955), Lewin (1935) and Werner (1948) has emphasized the continuum aspect of the process-reactive dimension. While such a hierarchical continuum may be warranted, our results point to a strong polarization, with process schizophrenics giving significantly more primary process responses and reactive schizophrenics giving significantly more secondary process responses as seen in Table I.

In commenting on our findings so far, it appears that the psychological deficit is considerably greater in the group identified as process schizophrenic whose histories reflect early and progressive psychological difficulties, than in those labeled reactive with more sudden onsets. It must be kept in mind that Ss in both groups were accepted for military service necessitating a modicum of overt adjustment and that the degree of disturbance at the time of hospitalization did not appear to differentiate the two groups.

Hypotheses 5 and 6 were not substantiated by our findings. The results in fact, raise many more questions than they answer. The two hypotheses were based on our thinking that because of the pervasiveness of the disturbance of the process schizophrenic all five content areas would be heavily invaded by primary process thinking, whereas the reactive schizophrenic with later onset of the disturbance and an apparent "good" early history would express most of his disturbed thinking in areas other than the earliest two psychosexual stages. Our results reveal no such patterns. We find that in both groups oral content is least invaded, while anxiety and aggression are most invaded by primary process for both the process and reactive groups. The degree of intrusion in both groups is not manifested in a continuum, but clusters in the non-oral categories. That is, with the exception of oral content, the remaining categories show a relatively high degree of primary process infusion, a finding relevant for both patient groups.

One meaningful explanation for such results seems to lie in the possibility that the orality provides the greatest source of gratification and therefore is least open to regressed thought. Such a statement is directly counter to a large proportion of psychoanalytic writing where the cause of schizophrenia is attributed, to a large extent, to a very early disturbed mother-child relationship in the most intimate area of contact: feeding. It would be important to return to the life history information to evaluate reports of early disturbance, but such an undertaking is not feasible for this paper.

In examining the secondary process responses on Table III, it will be noted that with the exception of anxiety, the differences between the process and reactive groups on the remaining content categories do not approach statistical significance. Thus, while the overall results reflect a significant difference on secondary process thinking between our two samples, when separated into the five content categories, only in the anxiety area does the difference reach significance, although a trend is noted in the direction of more secondary process for the reactive group on all comparisons with the exception of the anal category. Such a finding reveals the lessened stability of a secondary process differentiation within content categories when compared to primary process.

The next question to be raised relates to the frequency of responses in the five content areas without regard to primary and secondary process. Here we find interesting and statistically highly significant parallel trends for the process and reactive groups in which anxiety responses were more numerous than aggression, and sequentially followed by oral, sex and anal. While this finding comes as a surprise, the preeminance of anxiety and aggression may be a reaction to hospitalization, since all patients were tested soon after arrival at the hospital. It would be interesting to extend the investigation to hospitalized patients carrying diagnoses other than schizophrenia to determine whether such a sequence cuts across diagnostic categories and also whether this trend changes after a prolonged period of hospitalization.

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BOOK REVIEWS

Levinson, D. J., & Gallagher, E. B., Patienthood in the Mental Hospital, Boston: Houghton Miflin Co., 1964, xvii, 265 pp.

During the period of data collection for this work, both authors were at the Center for Sociopsychological Research of the Massachusetts Mental Health Center where Dr. Levinson remains to date as the Director. Dr. Gallagher has subsequently moved to the Kentucky College of Medicine's Department of Behavioral Science. While the former describes himself as a sociologically oriented psychologist, the latter is identified as a psychologically oriented sociologist. Thus, their conjoint efforts have produced, they hope, a work of social psychology in the truest sense. To accomplish this end, they draw freely on concepts and illustrations from the various fields of sociology, anthropology, psychology, psychoanalysis and psychiatry.

The task which the authors set for themselves is one which has received increasing attention in psychiatric circles in the past twenty years: How does one view himself as he assumes the role of a person with a mental or emotional illness! Speculative articles and papers have appeared in journals and at meetings in increasing numbers. But it is rare that a careful, systematic and empirical piece of research is done looking "from the inside out" as it were. Levinson and Gallagher have attempted just this, and have succeeded to a rather high degree. Granted, they limit their investigation to patients in a mental hospital (and a rather special mental hospital at that, as will be noted below), but the study has merit in its pioneering step towards a rigorously designed investigation of an extremely complex, personally intimate, and significant subject. An important thesis in the book is the position that to become a patient in a mental hospital (or, I would add, in an outpatient setting) does not suspend one in some kind of lifeless, albeit therapeutic, state of animation; rather the hospital (or therapy) experience is an ongoing, dynamic and continuing *part of one's life.* Further, to be truly therapeutic in the sense of dynamic personality change, the *patient* must view his patienthood in this way (though not all do, of course).

As an introduction to the study and to gain greater perspective on the mental hospital as a context for patienthood, the authors describe the hospital as a quasi-bureaucratic community, comparing their conception to that of Goffman's *total institution* — a highly self-contained and self-limiting organization such as the prison, mental hospital, monastery, concentration camp, etc. The authors agree that such a concept has value, but that it is too limited. They prefer a comparative description including the general hospital, prison, and residential college. The mental hospital then becomes a *therapeutic-educative-corrective* system, and patienthood is seen as a kind of career or role in which *patient-student-inmate* aspects are combined. Thus a truer, multifaceted picture of the mental patient begins to emerge.

In the next section then, the authors move on the main focus of the book, namely the patients themselves and what comprises patienthood. The study was carried out at the Massachusetts Mental Health Center, formerly the Boston Psychopathic Hospital, a state operated facility of 120 beds, affiliated with the Harvard Medical School. The therapeutic ideology is strongly psychoanalytic, especially among the large complement of psychiatric residents, though there is a degree of eclecticism represented in some of the more biologically oriented members of the senior psychiatric staff. Research ideology is strongly entrenched and highly valued at the hospital so that for both patients and staff the fact of the present study was neither unusual nor particularly threatening.

The first phase of the research involved several months of intensive "fieldwork" interviewing and ward "bull sessions" by one of the investigators, followed by the construction and refinement of a 116-item *Patient Role-Conception Inventory*. This was administered to 100 patients evenly divided for sex. The results were then factor analyzed, and what follows is one of the clearest and most readable presentations I have encountered of some fairly complex statistical manipulations. In no way can the statistical discussions be construed as esoterically technical nor oriented toward any "specialty" other than the intelligent, informed reader with a social science background.

The factor analysis resulted in three primary and four fusion factors which the authors then deal with in logically clear, empirically sound fashion to derive such vital patient questions as, "What constitutes an ideal mental hospital and an ideal mental patient?", "In what ways is the hospital good or bad for me?" "What is wrong with me?", "What is the way to recovery?", "What do I need in my everyday hospital life?", and "What are other patients like?" They are then able to determine from their data the kind of role-conceptions adapted by their sample of patients as answers to these questions and thus as ways of developing their career in the hospital. Finally, they move to a theoretical position to tease out the basic personality factors (as contrasted with psychopathology) which would be reflected in the particular role-conception or stance the patient takes in living out his patienthood. These "theoretical" personality factors are investigated further through correlating them with personality measures, and then noting the intermingling of social class with personality, role conception and hospital career. As might be anticipated there is considerable and very complicated influence from social class, basic personality, age, and role conception as well as from the hospital's own social-professional milieu in determining this career. The conclusions seem to apply equally to situations in "real life" outside the hospital as well as in its confines.

The authors are not remiss in pointing out the limited character of their work, noting in particular that role-conceptions might be expected to be considerably different in a small, exclusive private hospital—or at the opposite extreme in the very large, often primarily custodial state institutions. Patienthood, like lifehood, is a highly complex, individual and ever changing existential dilemma.

As noted, the book is very readable, and while it becomes quite technical at times, it is not esoteric. There could have been a smoother transition between the first more theoretical discussion of hospital milieu and the study proper, but this is a minor criticism.

The greatest appeal, of course, should be to those operating in the hospital setting, and especially those with a research "bent." It should also stimulate curiosity and a desire to study patienthood in settings with a different milieu and therapeutic orientation than the one in question. And for the non-research-minded clinician it should serve as a reminder of the multiple sources of influence on the patient's behavior and concept of himself above and beyond his individual psychopathology.

While there is a large bibliography and two appendices describing the Patient Role-Conception Inventory and the factor analytic data, there is, surprisingly, no index—a major omission in any technical work, it seems to me.

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Sampson, Harold; Messinger, Sheldon L.; and Towne, Robert D. *Schizophrenic Women: Studies in Marital Crisis.* New York: Atherton, 1964, pp. 174 + xiv, $4.95.

This is a multidisciplinary exploration of a "sequence of organization-disorganization-reorganization" in the lives of married schizophrenic women. Of the authors, Sampson is a psychologist, Messinger a sociologist, the late R. D. Towne a psychiatrist.

The book contains seven chapters and an appendix. Sandwiched between a Methods chapter (introducing the conceptual framework and approach) and the Summary chapter (containing conclusions and implications) are five chapters based largely on journal articles published previously by the authors. One thus gets the flavor of a book of readings, although the threads of continuity are clearly evident throughout. The appendix is the repository for brief case histories.

Subjects were seventeen married women, new admissions to a state institution. Each was studied intensively by one member of the research team at, during, and after institutionalization. Most information was obtained from them. Husbands and other adult family were also sources of material, as were institutional personnel, available records, local professional people, and community agencies. The team depended most on a "semi-structured" interview for data, more than 10,000 typed pages worth. Analysis focussed on examination of longitudinal sequences and interaction patterns, with the hope this descriptive approach might reveal developmental or marital constellations and crises worth future investigation.

Three groups were identified. One family constellation was composed of women who had difficulty separating themselves from a symbiotic relationship with mother figures. Their marital life was characterized by vacillation between husband and mother. Crises evolved from this vacillation (N = 4). A second cluster was made up of women with identification problems. Their crises centered about such events as replication of childhood traumata in their own adult lives or anniversary reactions to earlier events (N = 6). The third group consisted of unclassified cases, that is, women whose marital crises or development did not lend themselves to categorization (N = 7).

Institutional course and treatment seemed unrelated to descriptive category. Neither was followup outcome, although there was some suggestion that women in the first group tended to grow less maternally dependent following their schizophrenic episode. Also of interest—and evidently unrelated to category—was the ease with which some women settled into the patient role. This has been commented upon elsewhere (cf. Kaplan, 1964), and is an observation with philosophical as well as psychological implications.

Briefly, that covers format and findings. What were this reviewer's reactions to the study? They were a mixture of admiration and disappointment, with the latter the stronger emotion. One can only admire the aims of the authors. There is great need for detailed investigations of family relations and marital interactions—but one must decry their scientific nonchalance. In the name of the "descriptive method of the social sciences" (although their book was much more a set of summary statements and inferences than "descriptive"), the authors disregarded basic canons of scientific method, such as reliability and validity. They depended on a "semi-structured" interview for most of their data, but one never sees substantial samples, nor is there evidence of reliability checks. For validity, one is again dependent on their highly subjective assessments. They cite discrepancies between recorded information and verbal statement, differences they resolved by taking the word of the respondent in some instances, accepting the record as valid in others. One must agree with a recent reviewer: "Granted that these writers may have been insightful observers and their analyses penetrating; nevertheless, their broad generalizations still issue from an N = 1 . . ." (Gurel, 1964).

Somehow, the encounter between Alexander the Great and Diogenes comes to mind. Remember how Alexander asked Diogenes what favor he could do for him, and Diogenes said Alexander could stop blocking his light? In the present instance, the authors set up illumination as a goal. The problems indicated, plus other uncontrolled sources of possible error, make one unsure whether they did not inadvertently emulate Alexander as much as Diogenes. Hence this reviewer's disappointment.

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ANNOUNCEMENTS

NEW INSTRUMENT

The Braverman-Chevigny Auditory Projective Test is a new instrument developed under clinical auspices. It is now available to qualified psychologists free of charge for broad validation studies.

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The Sixth International Congress for the Rorschach and other Projective Tests will be held in Paris from the 22nd to 26th of July, 1965 at the Músee Pédagogique — 29, Rue d'Ulm, Paris V.

For information about this congress and for directions for presenting papers, write to Dr. A. Morali-Daninos, Secretary General, 7 Avenue Trudaine, Paris, 9, France.

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II. *Advanced Interpretation.* Psychological growth, arrest, regression over the age span. The younger child. Adolescent crisis. Irresolvable conflict in adults. Suicide. Storm over a marriage. Treatment goals. Daily, June 28-July 2, 1965. (Psychology 473; ½ C.)

Dr. S. J. Beck will conduct both seminars. Enrollment in each is limited to 50 students. For information and applications, write to: Rorschach Workshops, Department of Psychology, University of Chicago, Chicago, Illinois 60637.

WORKSHOP IN ANALYTICAL PSYCHOLOGY

Contributions of the C. G. Jung approach to clinical work in psychology will be explored by five leading Jungian specialists at one of the most vital conferences planned biennially by University of California Extension, Los Angeles. Scheduled for July 4 - July 16, 1965, the significant "Introduction to Analytical Psychology for Clinicians" Conference will take place in the scenic setting of the Asilomar Conference Grounds in Pacific Grove, California.

Prompted by the enthusiastic critiques of attendees at the three previous conferences, University Extension has once again planned a program which will draw together teachers and supervisors in graduate departments of clinical psychology or in residency or internship training centers who wish to include competent information about the Jungian techniques to clinical work in their program.

Since Jung's death in 1961, his work has attracted increasing interest. The conference draws upon the broad backgrounds of five experts in the field of Jungian psychology, including the following staff members: Bruno Klopfer, Ph.D., formerly clinical professor of psychology, UCLA; Alma A. Paulsen, Ph.D., Jungian analyst, New York, board member of the New York Institute for Analytical Psychology; Max Zeller, Dr. jur., Jungian analyst and training analyst, Los Angeles; Marvin Spiegelman, Ph.D., Jungian analyst, Los Angeles, lecturer in psychology, UCLA; and William Alex, M.D., graduate, C. G. Jung Institute, Zurich, Jungian analyst, San Francisco.

In setting down the ultimate aims for the specialized program, Dr. Klopfer, who will act as the Conference coordinator, stated: "The workshop can help set a meaningful goal during the current efforts in revamping the training of clinical psychologists. Those responsible for the training should know what the contributions of Jungian thinking are, and what are those special disturbances which are resistant to any other kind of treatment, especially psychiatrics."

The Conference consists of three seminars of 20 hours each and all participants attend the entire program.

Deadline for filing applications for enrollment is May 15, 1965. Enrollment is limited to persons with Ph.D. or M.D. degrees or equivalent in professional experience, and consent of the staff. Applications will be reviewed in the order received and applicants will be notified immediately thereafter.

Further information and application forms are available at the Department of Social Sciences, University of California Extension, Rm. 1355 G.B.A., Los Angeles, California.

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Applicants must be U.S. citizens. Preference will be given to pre-doctoral applicants. Training stipends ranging from $2,400 to $6,000 ($3,600 is tax exempt) are available, as well as housing allowances.

Further information and training application blanks are available from Dr. Henry Platt, Director of Training, the Devereux Foundation Institute for Research and Training, Devon, Pa., 19333, Tel: 215 MUrray 8-2600.

BOOKS FOR REVIEW

The following books are available for review. If you would like to review one and will assume the responsibility of doing so, write to the Executive Editor, Bertram R. Forer, 2170 E. Live Oak Dr., Los Angeles, Calif. 90028.

Abt, L. E. & Riess, B. F. Progress in Clinical Psychology. Vol. VI.

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French, T. M. & Fromm, Erika. Dream interpretation.

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Willmar State Hospital
Willmar, Minn. M 1961

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Portland, Ore. M 1961

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Delaware City, Del. M 1962

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Media, Pa. M 1956

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Hanover, N. H. F 1963

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SHEEHAN, Joseph (Ph.D.)
416 - 21 Place
Santa Monica, Calif. M 1952

SHIPMAN, William G. (Ph.D.)
Michael Reese Hosp.
29th St. and Ellis Ave. M 1956
Chicago, Ill. F 1964

SHNEIDMAN, Edwin S. (Ph.D.)
11431 Kingsland Ave. M 1949
Los Angeles 66, Calif. F 1951

SHULMAN, Harold S. (Ph.D.)
Mental Health Clinic
501 E. Springfield Ave.
Champaign, Ill. M 1957

SIEGAL, Richard S. (Ph.D.)
Clinical Psychologist
Menninger Foundation
Topeka, Kansas F 1962

SIEGEL, Burton (Ph.D.)
30 N. Michigan Ave.
Chicago, Ill. 60602 M 1962

SIEGEL, Joseph H. (Ph.D.)
11330 Hillcrest Road
Dallas, Tex. 75230 M 1956

SIEGEL, Max (Ph.D.)
50 Kenilworth Pl. M 1949
Brooklyn 10, N.Y. F 1956

SIEGEL, Miriam G. (Ph.D.) M 1942
57 E. 90th St. F 1949
New York 28, N. Y.

SILVERSTEIN, Mrs. Sophie M.
2301 Kings Highway A 1956
Brooklyn 29, N.Y. M 1964

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435 No. Bedford Drive
Suite 216
Beverly Hills, Calif. M 1952

SIMKINS, Lawrence (Ph.D.)
Dept. of Psych.
Univ. of Mo. at Kansas City
Kansas City A 1958
Missouri 64110 M 1963

SIMON, Maria D. (Ph. D.)
Hartaeckerstrasse 44
Vienna 19, Austria M 1959

SINGER, Erwin (Ph.D.)
33 Dunham Road
Hartsdale, New York F 1959

SINGER, Roland H. (Ph.D.)
7895 Mark Dr.
Verona, Pa. M 1953

SISSON, Boyd D. (Ph.D.)
2237 Darlington Dr.
Forest Acres
Augusta, Ga F 1957

SKEELS, Dell (Ph.D.)
Humanistic-Social Department
University of Washington
Seattle 15, Wash. M 1954

SLESS, Bernard
225 Upland Road
Merion Station, Pa. M 1952

SMITH, Mrs. Margaret J.
1404 Park Ave.
Eau Claire, Wis. 54701 M 1950

SMITH, Ross L.
Child Guidance Clinic
590 Newcastle St. M 1962
Perth, Western Australia

SMOLINSKY, Harold J. (Ph.D.)
2311 Hampden Blvd. M 1952
Reading, Pa. 19604 F 1963

SNOWDEN, Robert F. (Ph.D.)
2540 Huntington Dr. M 1953
San Marino, Calif. 91108 F 1959

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308 Betsy Brown Rd. M 1949
Port Chester, N.Y. F 1954

SOLL, Jerome (Ph.D.)
711 West End Ave. A 1961
New York, N.Y. 10025 M 1964

SOMERVILLE, Addison W. (Ph.D.)
Asst. Dir. of Planning for MH
Dept. of Health
St. Thomas
U.S. Virgin Islands M 1956

SOSNOFF, Mrs. Miriam
372 Central Park West A 1953
New York 25, N.Y. M 1955

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1912 18th Street
Huntington, W. Va. M 1951

SPIEGELMAN, J. Marvin (Ph.D.)
420 North Camden Drive
Beverly Hills, Calif. M 1953

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500 E. 56th Street
Brooklyn 3, N.Y. M 1950

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Univ. Guidance Center
Univ. of Miami
Coral Gables, Fla. F 1958

SPIRES, Alan M. (Ph.D.)
7 Sumner Rd.
London, Ont., Can. M 1954

SPRINGER, Florence E.
2 West 87 St.
New York, N.Y. 10024 M 1958

STANFORD, Dr. Margaret J.
Sonoma State Hospital
Eldridge, Calif. M 1950

STANTON, Mrs. Harriet
15 Livermore Rd. M 1942
Wellesley Hills 82, Mass.

STAVRIANOS, Mrs. Bertha
823 Ingleside Place
Evanston, Ill. M 1943

STEIN, Morris I. (Ph.D.)
21 Washington Pl.
New York 3, N.Y. F 1959

STEINER, M. Elizabeth
220 Brookdale Ave. M 1943
Newark 6, N. J. F 1946

STEINER, Meta (Ph.D.)
169-10 Highland Ave. M 1948
Jamaica 32, N.Y. F 1950

STEINZOR, Bernard (Ph.D.)
365 West End Ave.
New York 24, N.Y. M 1943

STENDEL, Mrs. Kathleen (M.A.)
Linde Medical Plaza
10921 Wilshire Blvd., Suite 701
Los Angeles 24, Calif. M 1950

STERN, Mrs. Kathryn Werner
14-32 30th Dr. M 1952
Astoria, L.I., N.Y. 11102

STERNBERG, David (Ph.D.)
192 Elm Dr. E. A 1955
Levittown, L.I., N.Y. M 1961

STERNE, Spencer B.
9157 Condesa Dr.
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STEWART, Ralph H.
Psychiatric and Psychosomatic
Research Inst.
Mt. Sinai Hosp.
8720 Beverly Blvd.
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STOKER, David H.
Norristown State Hosp.
Psych. Dept.
Norristown, Pa. A 1963

STONE, Irving R.
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1350 Front St.
San Diego 1, Calif. M 1951

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Vassar College M 1940
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509 Wyoming Ave.
Wilmington 9, Del. M 1951

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4256 Knollton Rd.
Indianapolis 8, Ind. M 1949

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Court House
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3819 Dakota Street
Cincinnati, Ohio M 1951

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St. Albans Hospital
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Dept. of Psychology
University of Oregon F 1961
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SWIFT, Joan Woodcock (Ph.D.)
5628 S. Blackstone Avenue
Chicago 37, Ill. M 1945

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162 Park Ave. M 1952
Glencoe, Ill.

TALLENT, Norman (Ph.D.)
VA Hospital M 1953
Northampton, Mass. F 1963

TANAKA, Mr. Fujio
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TAULBEE, Earl S. (Ph.D.)
Veterans Adm. Hospital M 1953
Tuscaloosa, Ala. F 1955

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1310 Tower St.
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TAYLOR, Mrs. Verda W.
1307 Maple Ave. M 1950
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TEICHER, Arthur (Ph.D.)
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7450 S.W. 140th Dr. M 1959
Miami, Fla. 33158

TOLOR, Alexander (Ph.D.)
Rt. 3 Saw Mill Ridge
Newtown, Conn. F 1963

TOMBLEN, Donald (Ph.D.)
44 South Munn Ave.
East Orange, N. J. M 1956

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32 Clover Lane
Princeton, N. J. F 1959

TOPPING, Marion Powers
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122 East 22nd Street
New York 10, N.Y. M 1948

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Plainfield, Vt. M 1949

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San Diego State College M 1953
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Boys' Training Center
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Independencia 565
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5 Dartmouth St. M 1951
Forest Hills 75, N.Y. F 1955

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1210 Medical Towers
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Sigmund Freud Inst.
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VOIGT, Walter H.
Dept. of Psychology
Ohio University
Athens, Ohio A 1963

VORHAUS, Pauline G. (Ed.D.)
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21 Bond St.
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Dept. of Psychiatry
Memorial Hospital
Chapel Hill, N.C. M 1964

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Mason, Mich. M 1949

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324 New St.
Spring City, Pa. 19475 M 1949

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2889 Torrington Rd. M 1949
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533 San Marino
San Marino, Calif. A 1955

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Brooklyn 34, N.Y. M 1953

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New York, N.Y. M 1960

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Riverdale 71, N.Y. M 1955

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215 S. Painter
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Medicine
Cincinnati 29, Ohio M 1954

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San Francisco 21, Calif. M 1942

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U.S.P.H.S. Hosp. (Ph.D.)
Fort Worth 1, Texas M 1952

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503 Roslyn Ave.
Westmount 6
Quebec M 1949
Canada F 1956

WILCOTT, Johanna Becker
3534 Edison Rd. (Ph.D.)
Cleveland 21, Ohio M 1957

WILDE, Prof. Guido (Ph.D.)
Apartado Aereo 11228
Bogota DE 2
Colombia, S.A. M 1955

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18 Essex Pl. M 1960
Hartsdale, N.Y. 10530 F 1960

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Mother Goose Nursery School
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Silver Spring, Md. M 1950

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440 Townsend
Birmingham, M 1944
Mich. 48009 F 1949

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New York 23, N.Y. M 1950

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Staten Island
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147 E. 50th St.
New York, N.Y. 10022 A 1964

WILSON, Helen Elizabeth
Eastern Montana (Ph.D.)
College of Education
1500 N. 30th St. A 1958
Billings, Mont. M 1960

WILSON, Mary T. (Ph.D.)
R.D. 1, Box 42 M 1944
South Salem, N.Y. 10590

WINER, Harold R. (Ph.D.)
8215 Westchester Drive
Dallas, Tex. 75225 M 1956

WISEMAN, Richard J. (Ph.D.)
Dept. of Psychology
Connecticut Valley Hospital
Middletown, Conn. M 1964

WOLF, Clifton W.
1626 E. Lake
Tyler, Tex. 75706 M 1963

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220 Fifth Avenue
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124 W. 79th Street
New York 24, N. Y. F 1940

WOLPE, Zelda S. (Ph.D.)
3400 Red Rose Dr.
Encino, Calif. 91316 M 1950

WOLTMANN, Adolf G.
1364 Lexington Ave.
New York 28, N.Y. M 1949

WOOD, Austin B. (Ph.D.)
810 E. 19th Street
Brooklyn 30, N.Y. M 1943

WOOLF, Henrietta K.
3345 Dent Place, N.W.
Washington 7, D.C. M 1950

WRIGHT, M. Erik (M.D.)
Director, Clin. Psych. Program
Depts. of Psychol. & Psychiatry
Univ. of Kansas M 1943
Lawrence, Kans. 66045 F 1963

WRIGHT, Morgan
Winnepeg Gen. Hosp. M 1955
Winnepeg, Manitoba, Can.

WRIGHT, Rogers H. (Ph.D.)
420 E. Carson St.
Long Beach 7, Calif. M 1961

WUNDERLIN, Robert J.
Psychology Dept. A 1961
Old Dominion College M 1963
Norfolk 8, Va.

WYATT, Frederick (Ph.D.) M 1948
1027 E. Huron St. F 1949
Ann Arbor, Mich.

YADOFF, Bernard (Ph.D.)
Chief Psychologist
Children's Hosp. of Pittsburgh
Pittsburgh, Pa. 15213 M 1958

YANG, Andrew T. (Ph.D.)
100 Devon M 1957
Bloomfield Hills F 1963
Mich. 48013

YUFIT, Robert I. (Ph.D.)
1458 East Park Pl.
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719 Sheryl Drive
Pontiac, Mich. 48054 A 1961

ZEEV, Bracha
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Israel

ZEICHNER, Abraham M. (Ph.D.)
25 Crestview Dr. F 1955
North Haven, Conn.

ZIERER, Ernest (Ph.D.)
42-05 Layton Street
Elmhurst, L.I., N.Y. M 1952

ZIMET, Carl N. (Ph.D.)
School of Medicine M 1959
4200 E. 9th F 1963
Denver, Colo.

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607 Bank of America Bldg.
Whittier M 1949
Calif. F 1962

ZUCKER, Luise J. (Ph.D.) M 1945
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New York 24, N.Y.

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EDITORIAL

I am grateful to the membership of the Society for Projective Techniques & Personality Assessment, Inc. for naming me to the post of Executive Editor of this Journal. In undertaking this exciting and difficult enterprise, I wish to express my gratitude to my friend and predecessor, Bert Forer, for patiently instructing me in the details of the operations. It is a real privilege to follow in his footsteps.

I am happy to announce a top notch group of staff editors who have accepted appointment or reappointment under the present regime. I am especially happy to announce that Jeanne Reitzell will continue to serve as Associate Executive Editor in charge of business management, and that Max Reed will serve as Associate Executive Editor in charge of the Book Review Section. It will be a pleasure to all of us to continue our association with Mr. Schramm, our printer.

The name of the Journal was recently lengthened to the *Journal of Projective Techniques & Personality Assessment*. This implies quite clearly that the content of the Journal will encompass all material relevant to the field of personality assessment. Although the bulk of the articles submitted will undoubtedly deal with individual research projects, we would like to encourage the submission of other types of articles as well. Reviews of research in a given area will be very welcome. Theoretical articles in the area of personality assessment will be appreciated if they are original and stimulating. Articles of interest to the profession, such as the lead article in this issue, will always be of interest. Case studies, if they contain some original approach or are presented with particular excellence, will find themselves welcome in the Journal.

If anyone wishes to write letters to the editor, comment on the articles or book reviews, or otherwise address the readers of this Journal, consideration will be given to the publishing of such material. As may be judged from the above, our policy will be flexible and will emphasize the quality of each contribution rather than any particular format or content.

I sincerely hope that all of you will enjoy reading the Journal as much as I expect to enjoy serving as its Executive Editor.

WALTER G. KLOPFER, PH.D.

IN MEMORIAM

DR. WALTER MORGENTHALER

April 15, 1882 – April 1, 1965

Though he was comparatively little known outside his native Switzerland, Rorschach diagnostic and Rorschach research throughout the world owe a lasting debt to Walter Morgenthaler, without whom the Psychodiagnostik of his younger friend Hermann Rorschach probably never would have seen print. In the troubled, uncertain and economically depressed years after the First World War it was anything but a simple matter to find a publisher willing to accept a still unproven work with ten or more (Rorschach first intended fifteen) plates that were expensive and, with the means of that time, technically exceedingly difficult to reproduce. Leading publishers in then impoverished postwar Germany had turned it down or demanded such reduction in the number of plates that the author could not agree. Morgenthaler, as the editor of a series of "Studies in Applied Psychology" for the newly founded, venturesome and soon afterward defunct Swiss publishing house of Bircher, recognized early the unique merit of Rorschach's discovery and pushed it through its publication against a certain reluctance of the publisher himself, a reluctance that is understandable to a degree when it is realized that Rorschach at first did not submit a completed manuscript, sketched the *Psychodiagnostik* only after its acceptance in what Morgenthaler himself called "an incredibly short time", but in an unfinished state, then became impatient when the printing proceeded more slowly than he expected, as if inwardly forewarned of his death a year later. Morgenthaler (1954) has described the "Battle for the Publication of the *Psychodiagnostik*" in a paper read in Zürich at commemorative meeting for Rorschach's seventieth birthday in 1954, and has also left us an account of the brief time they worked together in the University Psychiatric Clinic Waldau, Bern, from July, 1914, to October, 1915 (Morgenthaler, 1958). During this year, some while before the *Psychodiagnostik* was conceived, Rorschach eagerly gathered material regarding certain abstruse, psychopathologically highly interesting sects of the Canton of Bern and their founders. Morgenthaler shared his interest and placed his own collection of material about the sects at his friend's disposal, who made use of them for his posthumously published monograph (Rorschach, 1927). Another common interest was in the artistic production of psychotic patients. This time it was Rorschach who aided Morgenthaler in forming a collection that is still preserved in the Waldau Psychiatric Museum. In this respect as in many others, Morgenthaler was far ahead of his time. His monograph on the Waldau patient Adolf Woelfli (Morgenthaler, 1921) was among the first few serious studies of schizophrenic art and antedated Prinzhorn's classical book by two years. From the first down to the most recent (8th) edition of Rorschach's *Psychodiagnostik* in its original German in 1962 Morgenthaler was its editor, enriching the original slender volume bit by bit through the addition of Rorschach's posthumous paper "Zur Auswertung des Formdeutversuchs", of Bohm's tables, of a bibliography of the Rorschach literature (up to 1954), and finally of his own excellent "Introduction to the Technic of Rorschach's *Psychodiagnostik*".

Morgenthaler's grandparents were well-to-do farmers in the Canton of

Bern. On their farm, where he spent much of his youth, he learned to milk and to mow hay and acquired a local reputation for his ability to deal with the most troublesome horses and steers. In that soil he remained rooted throughout his long life. His father, a surveyor and engineer, was later elected Cantonal Councillor, and so the family moved to the city of Bern when Walter Morgenthaler was fifteen years old. His decision to study medicine was made early. When already in the clinical years of training he fell victim to an impairment of hearing that never left him. In those days laboratory methods were of smaller importance, and auscultation counted as one of the peaks of medical art. Morgenthaler doubted his ability to continue, but was encouraged by the leading Bernese internist Sahli and did so. When his student colleagues insinuated that the son of a Cantonal Councillor, even if hard of hearing, had nothing to fear in the examinations at the University of Bern, Morgenthaler indignantly and characteristically transfered to Zuerich and finished his medical degree there. He turned to psychiatry immediately. After working on the staffs of various mental hospitals in Switzerland and Germany, including a short period with Kraepelin in Munich, he returned to a senior position (Oberarzt) at the Waldau in 1913 and a few years later was lecturer on the medical faculty of the University of Bern.

Morgenthaler's way seemed paved for a promising academic career. In 1920 he became director of the private sanatorium for nervous diseases at Muenchenbuchsee near Bern, but retained his lectureship. The turning point was 1921. Representatives of the Swiss mental hospital attendants, who had received no formal training up to then, approached the Conference of Directors of Mental Hospitals with the request for regular courses and for a periodical for their information. The request was rejected. At first almost alone, Morgenthaler championed the attendants' cause, got it accepted both by the institutional directors and the health authorities, wrote the first training program and conducted in 1927 the first examinations for psychiatric nurses; also founded, edited and himself wrote much of the still flourishing professional magazine for Swiss psychiatric nursing personnel "Die Krankenpflege". The embittered opposition that he met, and overcame, is only comprehensible against the political background of the time, when labor unions were battling for their members' rights and every organization of employees was feared and hated as "red socialism". In the crossfire between the institutional directors, who labelled him a "socialist", and the nursing employees, for whom he was often not radical enough and by whom he was derided as a "capitalist", he doggedly pursued the way of his convictions with the goal of ensuring proper, qualified care for his mental patients. Those early battles are all but forgotten. Morgenthaler's success is exemplified by the fact that his "Textbook of Psychiatric Nursing" (1930) now in its seventh edition, became and has remained the one prescribed by the Swiss Psychiatric Association.

In those turbulent years Morgenthaler's professional prestige was little enhanced by his far- and foreseeing, though not uncritical championship of another unpopular cause: The psychoanalysis of Sigmund Freud. While never a blind subscriber to analytic dogma, Morgenthaler, together with Rorschach, Bleuler, and Binswanger was among the first to recognize the revolutionary importance of Freud's discoveries and to put them to practical use. Characteristically again he refused, in spite of Rorschach's urging, to join the Swiss Psychoanalytical Association out of fear that his freedom to criticize might be stifled. His espousal of two causes that were bitterly contested forty years ago and are now accepted as a matter of course terminated his prospects for an official and academic career. In 1925 he resigned his position of Director in Muenchenbuchsee and took the for that time exceptional and courageous step of opening a psychotherapeutic private practice in Bern. In this he was still active, though on a reduced scale, up to a few weeks before his death, While high office was denied to him, he became and remained for decades a respected and honored figure in Swiss and Central European psychiatry, a man whose judgment, long and carefully weighed, then pronounced in a few pregnant words, was sought and regarded.

Walter Morgenthaler, conservative in many things though always ready to accept and further what he found deserving among the new, befriended the struggling young profession of the psychologists as he had that of the psychiatric nurses, not without opposition from his medical colleagues. When the Second World War came, intensive propagandistic efforts were made from Nazi Germany to entice German-speaking Swiss psychologists into membership in German psychological societies. Morgenthaler's answer was to found the Swiss Psychological Association, embracing psychologists and psychologically interested psychiatrists, French and German speaking members of both professions, in one organization. With Piaget and C. G. Jung he founded in the dark year 1942 the Swiss Journal of Pure and Applied Psychology (now in its 24th year under the editorship of R. Meili) as organ of the Association. For many years he was chairman of the Rorschach Commission of the Association, trained numberless students in the Rorschach method, of which he was an acknowledged master, and signed not a few of the diplomas granted by the Commission. At the Second International Rorschach Congress that the Swiss Rorschach Commission held in Bern in 1952 Morgenthaler together with Loosli-Usteri, Friedemann, and the writer, helped to found the International Rorschach Society, four years later the Rorschach Archive, which is domiciled in the University Library of Bern. Though handicapped by increasing deafness and infirmities of age, he never lost interest in science, art, and the world about him and at the ripe age of eighty undertook a trip to Istanbul, from which he returned full of enthusiasm.

No seeker after popularity and acclaim, Walter Morgenthaler possessed the not too common courage of his convictions and lived to see by far the larger part of them justified. In this and in the esteem of the colleagues whom he respected he took a quiet satisfaction devoid of pride. He could be a sharp, but never vindictive opponent and above all a steadfast friend. Heavy in build, sparse but cogent in speech, deliberate in judgment, saturnine in temperament, he knew well and did not deny the indwelling melancholy of all human existence. Quietly, persistently, with the patient determination of those who come from the soil and are rooted in the soil he sought for knowledge, for understanding, and for the welfare of the mentally afflicted. So long as consciousness remained, he dispassionately analyzed his failing condition at the last and dispelled all pathos as he took leave of his friends.

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Current Attitudes About Projective Techniques in APA Approved Internship Training Centers

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Summary: A questionnaire designed to investigate opinions about the quality of training, responsibilities in teaching, and the attitudinal climate about projective techniques was mailed to the Director of Training at all APA approved internship settings in the United States. Eight-five per cent returned the questionnaires, and the results were classified and analyzed. The majority preferred basic Rorschach training prior to the internship, opposed survey courses as a substitute for solid foundation in one or two projective techniques, and objected to any reduction in semester hours exposure to these methods. Trainees themselves were reported to have shown a sharp drop in using projective techniques in research. The findings did not support the idea that there has been a substantial increase in the use of non-projective methods in clinical settings. Attention was given to opposing points of view about these methods. A plea was made for a re-evaluation of our training goals and for decisions which project realistically into the future.

The nature and level of training graduate students in the understanding and use of projective methods has been a concern of interested psychologists for years. Almost everyone has agreed that the quality and extent of training in these specialized techniques has not been uniform and that improvement could be made.

This paper deals with the findings of a survey designed to investigate the climate of opinion about projective techniques expressed by those psychologists directly in charge of training doctoral candidates during their internship year. These settings are usually geographically separate from university departments. Those responsible for training in the practical use and clinical application of skills learned in the university programs should be in a position to offer us valuable information. This information may be especially helpful at a time when a general re-examination of training conditions within the broader frame of Clinical Psychology is in the offing. Specific information from the wellsprings of clinical practice may help clarify contradictory reports about the status of projective methods. Some have predicted their gradual demise and seem eager to add their nail to the coffin top, while others seem to assume that these techniques have come into a flourishing maturity. We were interested in tangible data on the subject.

PURPOSE AND DESCRIPTION OF QUESTIONNAIRE

In April, 1964, the Training Committee[2] of the Society for Projective Techniques mailed a questionnaire to the Directors of Clinical Psychology at all currently approved internship centers listed in the *American Psychologist*, 1963, *18*, 660-662.

As is well known, attitudes toward projective techniques vary widely. Among the chief purposes of the questionnaire was to sample opinions about the general state of training, to investigate whether attitudes toward projective techniques appeared to be changing, to find out how the value of certain individual techniques was regarded, and to obtain tangible suggestions for future planning within the general sphere of training. The questions were usually designed to be open and to encourage individual reactions and comments. It was felt that the faults inherent in this approach would be outweighed by the spontaneity and freedom within individual respondent's comments and notations.

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A letter which accompanied the questionnaire indicated that the inclusion of additional points not covered in the questions would be welcome. The following twelve questions were submitted to the Director of Training in each activity:

1. In terms of what might be reasonably expected (introductory course or courses), do you find your beginning interns prepared well enough to take up Rorschach studies at a level appropriate to your setting? If *no,* please elaborate.
2. Would you *prefer* (1) (assuming time to be no consideration) to assume sole responsibility for teaching the Rorschach method after the doctoral candidate has entered internship, or (2) do you prefer that theoretical and scoring instruction be taught prior to internship? Comment freely if you will.
3. Would you give your reaction to the statement made by some academicians that "it is not the university's job to give extensive preparation in clinical testing, but to consider fundamental concepts and methodology underlying such tools."
4. Do you find that doctoral candidates favor the use of projective techniques in the evaluation of patients over other kinds of methods or tests designed to study pathology? Comment freely if you will.
5. What proportion of your trainees would you estimate show interest in using projective techniques as research tools (either research about the techniques or the use of them in research design)? How does this compare with the situation in the past?
6. Would you favor that the time allotted for course work for the study of projective techniques in the universities be (1) utilized for a wide variety of these techniques, or (2) be concentrated on one or two of them? If you favor the former, please state which ones.
7. Other than projective methods, what kind of assessment techniques do you find valuable for the evaluation of patients in the clinical setting? Do you consider the use of "non-projective" assessment techniques to be increasing?
8. Have you found (1) an increasing skepticism or (2) a growing acceptance on the part of doctoral candidates about the usefulness of projective techniques? Please comment freely.
9. Would you like to see more workshops on projective techniques become available in different parts of the country? If *yes,* what kind, and should they be focused at post-doctoral or sub-doctoral levels?
10. How important is the mastery of the following instruments for the practicing clinician: Projective Drawings; Thematic Techniques; Bender-Gestalt; Rorschach; Sentence Completion; Wechsler-Bellevue; Others (which ones)? (Very Important, Somewhat Important, of Little Importance, No Importance).
11. What is your reaction to the fact that some of the major universities are cutting down on the semester hours time for teaching Rorschach? (Some have dropped instruction in this method altogether, and others are concentrating on survey courses about projective methods.) Would you include in your reaction how you feel these alterations may affect the future status of projective techniques?
12. Do you favor the Society for Projective Techniques taking an ac-

tive role in influencing training qualifications? Do you have any specific suggestions in this regard?

ANALYSIS AND DESCRIPTION OF RESULTS

TABLE I—Geographical Range of Questionnaire Sampling

State	No. of APA Approved Internship Programs[a]	No. Returned Questionnaires
California	10	9
Colorado	1	1
Connecticut	4	4
Dist. of Columbia	3	3
Florida	1	1
Georgia	1	1
Hawaii	1	1
Illinois	6	5
Indiana	2	2
Iowa	1	0
Kansas	3	2
Kentucky	1	1
Louisiana	2	2
Maryland	2	2
Massachusetts	6	2
Michigan	3	2
Missouri	3	2
Nebraska	2	2
New Jersey	1	1
New York	9	9
North Carolina	2	2
Ohio	1	1
Oregon	1	1
Pennsylvania	4	4
Rhode Island	1	1
Tennessee	2	2
Texas	1	1
Utah	1	1
Wisconsin	1	1
Total	78	66

[a] As listed, *American Psychologist*, 1963, *18*, 660-662.

Eighty-five per cent, or 66 of the 78 directors at the internship settings returned their questionnaires. Less than 20%, or 13 of the respondents were members of the Society for Projective Techniques. Hence, the findings are *not* based on the opinions of a majority who might be assumed to take a particular point of view. Table I shows a breakdown of the geographical range of the survey. Twenty-nine states have approved internship training centers. All approved centers in 17 states returned questionnaires. In most cases, states with the largest number of approved centers responded well. Only one state having an approved program was not represented.

Most of the tables show four groupings of responses. These four groups were a result of independent judgment about a respondent's attitude toward the use of projective techniques. A non-psychologist read all the returned questionnaires and grouped them into four categories. The headings for the four groups were, "Anti" designating those respondents who made clear their opposition to the use of projective tests: "AA" designating those who expressed similar negative opinions but qualified their remarks with an attitude considered anti-ambivalent: "Pro" indicating those who were clearly sympathetic toward these methods: and "PA" designating those who communicated a positive attitude about projective techniques, but tempered their remarks with qualifications and were considered pro-ambivalent. It had not been intended to classify the materials in this manner, but emotions ran high in many cases, and such groupings appeared to offer an added dimension to the study. The total number of respondents classified under each of the four groups were: "Anti," 8; "AA," 10; "Pro," 32; "PA," 15. This sort of subclassification is subject to degrees of error, but it tends to add to reader information and offers the possibility for some reflections about the relation between attitude and opinion.

Table II indicates that more than half (61%) stated that interns were sufficiently trained as defined by Survey Question 1. However, many individuals qualified their affirmative response to this question. Comments included questions about what "sufficiently" meant, and the most frequent remark was that adequacy in training depended on the university from which individual interns came. All respondents in the "Anti" group indicated that interns were sufficiently trained and none in this group qualified their responses. A typical qualifi-

TABLE II–Opinions About Training Conditions in General

	Anti	Anti-Ambivalent	Pro	Pro-Ambivalent	Total
Question I					
Interns not trained sufficiently	0	1	13	5	19 (29%)
Interns trained sufficiently	8	9	13	10	40 (61%)
Intermediate position taken	0	0	6	1	7 (11%)
Question II					
Prefer Ror. training prior to internship	8	9	29	14	60 (91%)
Prefer Ror. training after intern leaves Univ.	0	1	2	2	5 (8%)
Question VI					
Prefer survey of wide variety PT courses	4	4	5	2	15 (23%)
Prefer specific courses in one or two PT	3	6	21	10	40 (61%)
Prefer both survey and specific courses	0	0	7	4	11 (17%)
Prefer no courses on PT	1	0	0	0	1 (2%)
Ror. and TAT as specific course choices	1	0	14	9	24 (36%)

cation from the "Pro" group who answered the question negatively was:

> "We admit students into our program from universities throughout the country. The over-all trend is that students know less and less about projective techniques. It appears that they are being taught that there is something 'unscientific' about projective devices. It takes a lot of re-education to get the student to use such clinical instruments. There seems to be a heavy emphasis on the 'objective' type test which is of little value in our setting."

Qualifications from both the "Ambivalent" groups who answered the question affirmatively were similar to:

> "However, interns do vary in the degree and quality of their preparation, not only with regard to Rorschach, but in projective methods generally."

Table II makes it clear that almost everyone (91%) preferred that basic Rorschach training be accomplished prior to the internship year. This was true even though the question had been stated to allow for recognition that the time for such training would be available. Sixty-one per cent indicated that university training in projective techniques should focus on one or two methods. While 36% specifically mentioned Rorschach and TAT as designated courses, most of those who were opposed to survey courses implied that these two techniques should be the focus in individual courses. In addition to the 61% who called for specific courses in one or two basic methods, 17% indicated that if survey courses were given, they should be given in addition to coverage of one or two basic techniques in separate courses. Hence, 78% were opposed to survey courses on projective methods as a substitute for thorough grounding in Rorschach and TAT.

Table III indicates that 70% were opposed to the idea that the universities should place more emphasis on fundamental concepts than on adequate preparation in clinical testing. Question three was based on a quotation from the remarks of an academician who strongly opposed the teaching of techniques. This question elicited more comment and exposition than any other question in the survey, with the exception of question eleven, which dealt with semester hours allotted to the teaching of Rorschach. In some cases, impassioned remarks spilled over into several pages. Some typical reactions from those opposed to more emphasis being placed on theoretical concepts than with the acquisition of skills were:

> "If the universities don't assume this responsibility, who is going to do it? Like in medical training, the applied clinical courses should be considered just as important as theoretical ones."
>
> "I have come to suspect that the teaching of 'fundamental concepts and methodology' might more accurately be described as an implanting of an anti-clinical spirit."

> "I regard the statement as an effort to discredit professional clinical work and a throwback to 'purity of science' thinking which threatens to split our field."

Those in the group who agreed that the university did not have the responsibility for teaching techniques responded in a fashion like the following:

> "I agree. The internship setting should provide all clinical training beyond history, theory, and mechanisms."

> "I agree in part, but the universities do have some responsibility too."

Table III indicates that a substantial number (76%) were opposed to any trend within the university training programs to cut down on semester hours time spent in teaching projective methods. Only 14% favored a reduction in teaching hours (primarily those from the group who categorically opposed the use of projective methods), while 15% expressed ambivalent attitudes about this matter. A representative statement from the "Anti" group's position was:

> "This represents the realities of life. Projective techniques had been oversold by all of us. Their retrenchment, while too extreme, is a healthy counter-force."

An example of a remark from the "AA" group supporting reduction in teaching efforts was:

> "I find this an entirely reasonable eventuality, despite the fact that at times it might be the product of a derogatory attitude rather than an honest recognition of the failings of a campus-produced 'clinical' experience."

Someone from the same group ("AA") opposing any reduction in teaching time said:

> "It is unfortunate. A concentrated course in the Rorschach will utilize the principles involved in all projective techniques and is a better teaching situation than a survey approach. The effect may reinforce the declining status of psychological testing."

Two points of view from the "Pro" and "PA" groups opposing the reduction in training include some far-reaching considerations:

> "If the universities purport to be training clinical psychologists, solid training in the Rorschach is an essential element because of its wide use and general acceptance in clinical settings. If they abandon it or give it short shrift, it will result in even greater misuse of the technique than is now prevalent. The students not only would be too unfamiliar with it to use it, but would not know its limitations either. Yet, they would use it in the clinics because of the demand. This trend may be another reflection of the poor adaptation of the universities to the students' goals. Most clinical psychology students expect to practice, not become 'scientists'. A proportion of the more conscientious students might try to get private tutoring in the method. Having seen the unreliability of this in the period before universities provided courses, we are convinced that this would be unwise."

TABLE III—Opinions About Attitudes Expressed in Some University Settings

	Anti	Anti-Ambivalent	Pro	Pro-Ambivalent	Total
Question III					
Strongly agree that Univ. not responsible for technique teaching	3	1	0	2	6 (9%)
Take moderate position Univ. has some responsibility for teaching technique	4	3	2	1	10 (15%)
Take sharp issue with attitude that Univ. not responsible for teaching technique	0	5	30	11	46 (70%)
Take issue with attitude that Univ. not responsible, but show ambivalence	1	1	0	2	4 (6%)
Question XI					
For any trend to cut down on PT in Univ.	7	1	0	1	9 (14%)
Against any trend to cut down on PT in Univ.	0	5	32	13	50 (76%)
Ambivalent	1	4	3	2	10 (15%)

> "I feel very strongly about this problem. I believe that the university has complete autonomy as to what it chooses to offer in its curriculum. However, I believe that to sharply curtail the teaching pertinent and essential to clinical work while continuing to label a program 'clinical psychology' is a serious misrepresentation, since 'clinical' in essence always has meant the direct service aspect and not the underlying science alone. I believe that such a limitation on the training will have major implications in that either additional training facilities will have to be established or clinical work will suffer seriously. I do not believe that field stations can undertake the responsibility which belongs to the university."

Perhaps the main points from Table IV are that while over half (58%) of the interns favor the use of projective techniques, very few show any interest in using these methods in research. Sixty-five per cent reported that there has been a drop in the interest interns show in using projective methods in research, as compared with the interns of the past.

Table V will be of special interest to those interested in a comparison between present and past attitudes about projective tests. Sixty-seven per cent said there was either no increase in the use of non-projective tests in their settings, or did not comment on the question. Some (29%) reported that the use of non-projective tests was increasing. Most frequently, the non-projective methods listed were those used in assessing organic damage. Intelligence tests comprised the next group of frequently mentioned non-projective tests. Personality scales and inventories were not mentioned frequently enough to assume they added materially in accounting for any increase in the number of non-projective devices used. However, interview techniques were included often enough to assume that there is an increase in the use of this variety of instrument. About half of the respondents reported an increasing skepticism about projective methods on the part of their trainees. The other half reported either no observed changes in their candidates' attitudes, or found them to show an increasing acceptance of projective methods.

Information about how the respondents regarded the importance of individual projective techniques may be found in Table V. The Wechsler Scales, Rorschach, and TAT were considered the most important by an overwhelming majority.

Table VI indicates that opinions about the desirability of workshop training were about equally divided. About half (49%) stated that they were undecided or thought workshops undesirable. Of those who favored workshops, most indicated that this variety of training should be at the post-doctoral level. Table VI shows that 65% expressed a favorable attitude toward interested groups, like that of the Society for Projective Techniques, taking an active role in in-

TABLE IV—Trends and Observations About Intern Attitudes

	Anti	Anti-Ambivalent	Pro	Pro-Ambivalent	Total
Question IV					
Find interns favor projective techniques	4	5	16	13	38 (58%)
Find interns do not favor projective techniques	2	2	7	1	12 (18%)
Undecided	2	3	8	2	15 (23%)
Question V					
Most interns show interest in PT research	0	1	3	0	4 (6%)
Half show interest in PT research	0	2	5	6	13 (20%)
Few show interest in PT research	7	7	24	9	47 (71%)
Increase in interest from past	0	0	2	1	3 (5%)
Decrease in interest from past	7	9	19	8	43 (65%)
No change from past	0	1	7	6	14 (21%)
No opinion	1	0	0	1	2 (3%)

TABLE V—Opinions About Possible Shifts in Attitudes Toward Projective Techniques

	Anti	Anti-Ambivalent	Pro	Pro-Ambivalent	Total
Question VII					
Use of non-PT increasing	7	1	9	2	19 (29%)
Use of non-PT decreasing	0	2	1	0	3 (5%)
No change in use of non-PT	0	3	11	9	23 (35%)
No comment	1	4	11	5	21 (32%)
Question VIII					
Increasing skepticism re PT	6	7	16	4	33 (50%)
Growing acceptance re PT	0	3	8	5	16 (24%)
No change	2	0	5	7	14 (21%)
No comment	0	0	3	0	3 (5%)
Question X					
Drawings, Very Important	0	1	14	8	23 (35%)
Drawings, Somewhat Important	0	7	14	6	27 (41%)
Drawings, Little Importance	5	2	3	2	12 (18%)
Drawings, No Importance	2	0	1	0	3 (5%)
TAT, Very Important	3	5	25	15	47 (71%)
TAT, Somewhat Important	3	4	6	2	15 (23%)
TAT, Little Importance	1	0	1	0	2 (3%)
TAT, No Importance	0	0	0	0	0 (—)
Bender, Very Important	2	2	19	5	28 (42%)
Bender, Somewhat Important	1	6	8	6	21 (32%)
Bender, Little Importance	4	2	4	5	15 (23%)
Bender, No Importance	0	0	1	0	1 (2%)
Rorschach, Very Important	1	8	32	16	57 (86%)
Rorschach, Somewhat Important	5	2	0	0	7 (11%)
Rorschach, Little Importance	1	0	0	0	1 (2%)
Rorschach, No Importance	0	0	0	0	0 (—)
Sent. Cpl., Very Important	1	3	10	3	17 (26%)
Sent. Cpl., Somewhat Important	4	6	15	8	33 (50%)
Sent. Cpl., Little Importance	2	1	4	5	12 (18%)
Sent. Cpl., No Importance	0	0	2	0	2 (3%)
Wechsler, Very Important	6	9	32	15	62 (94%)
Wechsler, Somewhat Important	1	1	0	1	3 (5%)
Wechsler, Little Importance	0	0	0	0	0 (—)
Wechsler, No Importance	0	0	0	0	0 (—)

TABLE VI—Attitudes Toward Workshop Training and Group Action on Training Standards

	Anti	Anti-Ambivalent	Pro	Pro-Ambivalent	Total
Question IX					
Workshops are desirable	1	4	21	8	34 (52%)
Workshops are not desirable	6	4	4	1	15 (23%)
Undecided	1	2	7	7	17 (26%)
Post-Doctoral workshops	1	2	10	6	19 (29%)
Sub-Doctoral workshops	0	1	2	0	3 (5%)
Both Post and Sub-Doctoral workshops	0	1	8	1	10 (15%)
Question XII					
Wants SPT to take active role re training	0	4	27	12	43 (65%)
Doesn't want SPT to take active role re training	7	5	2	2	16 (24%)
Undecided	1	1	3	2	7 (11%)

fluencing training standards. About 25% did not favor independent group action. Many of those who specified that some action should be taken indicated that it should be done within the APA channels.

DISCUSSION AND SUMMARY

It appears that many of those who have the responsibility for guiding the doctoral candidate in the application of what he has learned about projective methods have found a lack of uniformity in how well their trainees are prepared. In some instances, this seems to be a function of the attitudes toward projective techniques in some university departments. Since the psychologists in internship training centers do not expect to take the responsibility for basic course work in methods like the Rorschach, great care and consideration should be shown by the universities in choosing competent individuals to teach these courses. There is considerable agreement that survey courses about projective methods are no substitute for careful grounding in certain of the fundamental techniques. The idea that careful preparation in theory, fundamental concepts, and methodology, constitute the major responsibilities within the university departments is not shared by many psychologists in the field. An approach which subsumes that the primary responsibility lies in teaching theory fails to take into account the practical demands which will be made on the student. This applies not only to what the student will encounter in his internship, but also in later practice. Many individuals are greatly concerned about any trend in the universities to reduce teaching hours devoted to projective methods. A combination of lukewarm or even hostile attitudes toward these devices, an uneven quality in what is taught in different settings, casual assignments of professors with varying degrees of competence to teach these techniques, and reduced teaching hours may summate to reduce the psychologist's status in the clinical realm. Rosenwald (1963) has made a perceptive analysis of the relation between tools and status, self-image and changing attitudes and emphases in the clinical psychologist of today. Should we contribute to our conflicts by not having foresight in our teaching methods?

While many doctoral candidates continue to show a keen interest in using projective methods, their interest in research about and with these techniques has dropped sharply. There are those who maintain that this is a good thing. There are, after all, a great many negative findings about these techniques in the literature, and they seem to be increasing. To some extent, the decrease in research interests in this area shown by doctoral candidates may be a function of the pressure the candidate feels from his department to choose a "clean" dissertation topic in which the variables for study are as clearly defined as possible and the measures are simple and wieldy. This is often a fact of life. Perhaps this is as it should be. However, we state that one of our purposes in offering the doctoral degree is to encourage the candidate to make an original contribution to knowledge within the field. Because a particular technique is complex, and because there are so many unknowns about it are no excuses for discouraging scientific inquiry about a fundamental and widely used technique. Are we teaching our graduate students to substitute brilliance in design for originality in purpose? The great leaps forward in science have seldom come from experimental design alone, but from individual freedom to think about the variables and measures, both before and after the design is accomplished. We should not encourage doctoral students to stop thinking about projective methods because the literature contains negative findings, but encourage them to think about why so many negative findings exist in relation to one of our most important tools. Some of the most fundamental research problems, whether in design, technique, concepts, and theory underlie the difficulties that surround knowledge about projective techniques. The problems may lie less in the techniques than in our grasp of them.

There are, of course, many able teachers who do encourage their students to inquire and work in this area, and there are significant studies which are not classifiable as having shown negative findings. We have overstated our case for purposes of emphasis. The survey has suggested that there may be an increasing number of sincere and dedicated academicians who have tended to discourage students from working with projective devices. If we view ourselves as teachers who have a function to inspire students to think about areas of research, then we should be aware that the reported sharp reduction in students' interests in research about projective methods may have a profound effect on the initiation of research in the future.

The position taken by what may be called a radical minority of the respondents to our questionnaire deserves serious consideration. The essentials of this position include the conviction that there is a heavy loading in the literature of negative findings about projective techniques, that the universities need not be responsible for any extensive preparation in testing techniques, that there would be no great loss in reducing teaching hours with these methods, and the belief that projective methods have been "oversold." This point of view can be well supported. It is not our task here to offer any extensive analysis of the underlying factors for different points of view. The responsibility for the existence of different points of view does not lie at the door of any one group. Our position is perhaps best framed by several questions. Can the problems that surround training, research, and competent interpretation of projective techniques be solved by either rejecting them or withdrawing from them? We are, after all, a very young discipline. How can we be certain that negative findings are more a function of an instrument than of our experimental design? Do we have experimental methods capable of coping effectively with multidetermined subjective data? These are questions that must someday be answered, and we should remember that our graduate students of today will be the innovators of tomorrow. At the very least, it should be our responsibility to make them aware of the importance and complexities of these fundamental issues.

A relatively small percentage of those psychologists who returned the questionnaire reported a rise in the number and kinds of non-projective tests being used and taught in the clinics. We may ask then, what is replacing instruments like the Rorschach and TAT in field establishments? Our respondents gave us no clues. The vast majority of tests named were intelligence and organic assay tests. One assumes these tests would be used extensively quite aside from the use of projective methods. There is little or no evidence to suppose that the familiar varieties of projective techniques are falling into disuse.

It would appear then that action is called for in insuring the kind and quality of training in projective methods that clinical practice requires. In another paper, the author (1964) has discussed some of the factors that may underlie variability in training standards. Almost any thoughtful person could enumerate half a dozen contributing points. Recently, Wyatt (1964) remarked that a fundamental factor in influencing graduate students' attitude toward the study of projective techniques lies in the nature of the prestige and accomplishments of the faculty member assigned to teach these methods. We may obtain information pertinent to this and other important aspects of teaching practices in the universities from a forthcoming paper by Wohl and Jackson (1964).

There is, of course, no easy solution to training problems in relation to projective techniques. They are related to those larger problems that surround the conflict between "pure" and "applied" science. This conflict will long remain with us. The faults lie in a variety of directions and they are by no means merely a function of what is done in the universities. Clinicians are too often glad to leave the responsibilities about research and progress to others. It remains a fact, however, that Clinical Psychology has assumed the responsibility for competent training in these techniques. If we move toward avoiding this responsibility, no matter what the basis may be, some other discipline may take over where we have foundered. Increased emphasis on training in psychotherapy, however pressing and necessary, should not lure us into underrating the value of techniques which have contributed to our individuality as a profession.

It may be that future progress in our field will depend on establishing professional schools in which standards and training can be controlled in a more uniform way. Some of the problems about teaching psychotherapy are very similar to those related to teaching projective methods. The universities cannot be expected to provide what they do not have to offer, like disturbed populations available for teaching purposes. As presently set up, the division of responsibilities between the internship centers and the universities is too blurred. Moos (1962) has concluded that individual supervisory sessions contribute most to knowledge in the study of Rorschach. This may be a crucial consideration. Mayman (1962), and more recently, Albee (1964) have called for the establishment of professional schools for the clinical psychologist. At the present stage, serious consideration might be given to prolonging the term of internship. We may be crowding too much, too soon, and over too brief a span into the internship year.

In the main, our survey strongly suggests that much work is yet to be done and that we need to thoroughly re-evaluate just what our training goals are. The future of projective techniques is not likely to stand or fall by virtue of the decisions leaders in our field make about them, but our relationship to them may. Without foresight and careful planning, we might find our offspring adopted by someone else. Those who think this would be a good thing might be wise to give the matter second thought. Our fuzzy state of knowledge about our own child is no excuse to forfeit our responsibilities as parents. We should look within ourselves, think the matter through with great care, and make the kind of decisions that project into the future.

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Early Memories: Theoretical Aspects and Application

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Summary: Early memories from an out-patient psychiatric population are analyzed according to a specifically devised scoring system. The units of analysis are referred to as modes and are defined as the individual's approach to emotional areas such as "givingness," "mastery," and "mutuality". An inter-judge agreement of about 74% resulted from scoring the early memories by three judges. On the basis of the various combinations of modes, three types of early memories are constructed and compared with certain aspects of psychological reports. The types seem to distinguish between relatively adequate and inadequate level of ego integration.

The purposes of this study are:

1. To present and explore a theoretical vantage point and hypothesis for understanding certain formal aspects of early memories.

2. To organize a set of units for scoring early memories.

3. To test the reliability of the scoring units.

4. To search for types of early memories based on meaningful clusters of units.

5. To compare the inferences derived from types of early memories with inferences regarding certain aspects of personality functioning based on projective tests.

The value of early memories as an aid to dynamic understanding of psychiatric patients has long been recognized by Freud (1899, 1913) and Adler (1930, 1932). Since then there has been a growing interest in gaining further insights regarding their application to diagnostic and prognostic purposes. During the initial interview or in the course of treatment, patients are encouraged to recollect incidents pertaining to their early childhood. Even without further associations, the manifest content of these recollections with its accompanying affect (or lack of it), may be of value in understanding some of the underlying meanings of the initial complaints, and it could also provide helpful leads in the psycho-therapeutic sessions. There have been a number of studies demonstrating how meaningfully the childhood recollections fit in with the highlights of the patient's clinical data (Kahana, *et al.* 1953, Saul, *et al.* 1956). These studies are primarily based on a clinical approach and the usefulness of early memories is amply shown in them. Summaries of some of these clinical studies are found in Lieberman (1957), and Levy & Grigg (1962) among others. In addition, more objective approaches to early memories have been initiated by Mayman & Faris (1960), Mayman (1963), Langs & Reiser (1960) and Levy & Grigg (1962). What is common to these attempts is the development of a scoring system for analyzing early memories and testing it for reliability and validity. Such an approach requires their analysis independent of the wealth of the clinical material. Subsequently, personality profiles arrived at by analyzing early memories are compared, along specific dimensions, with profiles based on the clinical data or psychological testing, to find out what aspects of the personality could be tapped by early memories alone. This approach was begun in a previous preliminary investigation (Levy & Grigg, 1962), and it has since been further explored by comparing the inferences from early memories with the inferences of psychological testing and also

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[1] I wish to express my appreciation to A. Weiss and J. Sigal for reading a draft of the paper and making many helpful suggestions.

with a few psychotherapeutic cases.

This study shares with other studies the general assumption that early memories related by the patient in the clinical situation contain unique and meaningful material about him. The specific focus here is on certain formal qualities of early memories which are called modes. A mode is defined as the recollector's approach to emotional areas presented in the early memories and it is inferred from their manifest content. The modes are viewed as indicators of the person's characterological ways of coping with significant areas of psychological functioning, such as "mastery," "mutuality," etc. Of course the contents of early memories are highly personal, but here the primary focus is on their formal aspects. On the basis of experience with analyzing early memories, certain of their formal characteristics have been observed repeatedly and therefore emerged as the "elements" of the following classification.

Two basic dimensions are isolated for highlighting the modes in the early memories: Active-Passive and Positive-Negative. Each of these dimensions represents two sets of opposites. The Active-Passive dimension refers to the degree of ego participation in the recollection. On the active end of the continuum, the ego is portrayed as "acting upon" the environment. The recollected experience may convey acting on one's own, initiating and carrying out an activity, and/or participating with others. On the passive end of the continuum, the ego is portrayed as being "acted upon" by the environment. The recollected experience conveys: being the follower, the recipient and/or the observer of others' activities. The Positive-Negative dimension refers to the affect-quality in the recollection. On the positive end of the continuum, the environment is perceived as supporting and the feeling is one of well being. On the negative end, the environment is perceived as attacking, threatening or limiting, and the associated feeling is one of being overwhelmed, while lacking adequate support.

The combinations of these two dimensions produce 4 basic modes of approaching emotional areas in early memories: ego active-affect positive (e.g. acting on one's own with feelings of well being), ego active-affect negative (e.g. acting on one's own with feelings of hostility), ego passive-affect positive (e.g. being cared for with feelings of well being), and ego passive-affect negative (e.g. being unloved with feelings of being endangered). Each early memory usually represents at least one of these basic modes, and in a series of early memories, one would expect to find either one mode as typical of the recollector or various combinations of the four modes. This characteristic mode or the manner in which modes fit together is referred to as the type in early memories. The type may be relatively complex if the modes are divergent and contain opposite approaches; it may be relatively simple if the same mode repeats itself and no opposite approaches are present. It is assumed that the types, composed of various combinations of modes inferred from a series of early memories, reveal the range and balance of the approaches to emotional areas that the recollector is capable of bringing out spontaneously.

The clinical significance of the construct "type" (of early memories) became clear in the course of comparing patients' psychological reports with their early memories. The following hypothesis was developed during the pilot study regarding the correspondence between the relative simplicity/complexity of the type and level of ego integration as assessed by the testing. Simple types, composed of a very narrow range of modes with absence of balance between the opposite modes (e.g. ego passive-affect negative mode is almost exclusively present) are associated with very inadequate level of ego integration, the so called borderline cases. Complex types, on the other hand, those composed of a relatively wide range of modes with balance between the opposite modes (e.g. ego active-affect positive and ego passive-affect positive modes) are associated with a level of ego integration commonly found within the neurotic range. The first step in examining the theoretical point of view and the hypothesis, is to define the modes as operationally as possible and test them for reliability.

In scoring an early memory, one evaluates its formal qualities (modes) as they are related to certain emotional areas.[2] Three emotional areas, Givingness, Mastery, Mutuality, are found to cover the contents of early memories. Givingness refers to those early memories in which the recollector brings out incidents about: giving, being given to, grabbing, being abandoned. Mastery refers to those early memories in which the recollector brings out incidents about self-assertion, being the follower, defiance in self-assertion, failure in self-assertion. Mutuality refers to those early memories in which the recollector brings out incidents about co-operation, observing others co-operating, disturbing co-operation, and being defeated by a competitor. The four modes, discussed above, cut across the three emotional areas, resulting in 12 units of scoring early memories.

Table I illustrates the specific manifestation of each mode in its relation to each of the emotional areas. Modes are designated by the letters a to d, and emotional areas by Roman Numerals I to III. Following the table, there are examples of at least one significant aspect of each of the 12 units.

RELIABILITY STUDIES

Procedure: The population of this study consists of psychiatric patients whose early memories and psycho-

TABLE I—Modes and Emotional Areas of Early Memories. MODE: Ego Participation and Affect Quality.

	Active		Passive	
	a Positive	b Negative	c Positive	d Negative
I Givingness	Giving affection, material goods, etc., protecting and helping others.	Attacking objects who frustrate dependency needs; Aggression due to humiliation.	Being given to, cared for, gratified.	Being deserted, separated from love object, threatened by danger, attacked and destroyed (with various degrees of feeling helplessness).
II Mastery	Self assertion, self confidence, self-sufficiency, being on your own.	Self-assertion by defiance, taking risks to show off independence.	Being the follower-observing others mastering, emulating others, being encouraged to be on your own.	Failure in self-assertion – being ashamed, trapped, feeling inferior.
III Mutuality	Cooperating with others in: play, work and exploration.	Disturbing cooperation; aggression against others due to competition, ridiculing a friend, attempting to replace parents or siblings.	Emphasizing and/or observing warm and close relations among friends and family members.	Being defeated by a competitor – being replaced by a sibling, being ridiculed by a friend (with or without suppressed anger rather than feelings of helplessness).

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[2] Erikson's (1950) well-known exposition of zone and mode has served as a model for building the scoring system.

TABLE I

Ia. Givingness: Ego Active-Affect Positive[a]
"I remember my father working down the street and I used to take cake for him and stuff."

Ib. Givingness: Ego Active-Affect Negative
"I was stealing money from the kids because they made fun of me."

Ic. Givingness: Ego Passive-Affect Positive
"I remember sitting on my mother's lap and mother combing my hair."

Id. Givingness: Ego Passive-Affect Negative
"When I was three years old I was struck by a car."
"I remember that my father died when I was very young."
"At the age of four—I remember being in the bath room, sitting on the toilet and a man walked in the bath room with a willow switch, picked me up and hit me across the buttocks."

IIa. Mastery: Ego Active-Affect Positive
"I remember fixing my own bottle. I poured it out of the big milk bottle into my bottle."

IIb. Mastery: Ego Active-Affect Negative
"I started a fire in the bedroom curtain with a lighter to see what will happen."

IIc. Mastery: Ego Passive-Affect Positive
"When I went to kindergarten I used to hang on the teacher's coat tail."

IId. Mastery: Ego Passive-Affect Negative
"I remember fighting with a boy and he was beating me up."
"I was stuck in grade one because of my reading difficulties."

IIIa. Mutuality: Ego Active-Affect Positive
"I used to play in the house with my brothers and horse around. I particularly remember playing in the basement with my brother."

IIIb. Mutuality: Ego Active-Affect Negative
"I was fighting with another girl to see who was going to be there first."
"I remember when father used to come home drunk and was chasing mother."

IIIc. Mastery: Ego Passive-Affect Positive
"I remember the love and security I had at home, the beautiful view at home and the river and the boats."

IIId. Mastery: Ego Passive-Affect Negative
"I went to the hospital, and was sitting in the waiting room. Then my mother came down with a wheel chair with my little brother. He then got all the attention."

logical testing were collected at the out-patient psychiatric clinic of Cincinnati University. The early memories were gathered by psychiatric residents during the initial interview by their asking the patients routinely: "Go back as far as you can and tell me the first memory that you remember." This was followed by requesting more memories from early childhood. Subsequently these patients were referred for psychological testing (done by the author) for the various usual reasons, and the tests administered were: Rorschach, TAT, and DAP. The two sources of data were collected independently, and the early memories did not serve as diagnostic information for the psychological testing. Out of approximately 300 possible patients, it was planned to include 40-50. The psychological reports were arranged in alphabetical order and a random sample of 60 was drawn. In 20 cases, either the early memories were not recorded or only one had been obtained. These 20 patients were excluded from the study. The distribution, according to sex, of the 40 patients who comprise the population in the study, is 26 females, 14 males, which approximates very closely the proportion of the sexes in the entire clinic population.

For the reliability study of the scoring units, the early memories were scored independently by two judges[3] and compared with the author's scoring. The table of scoring, as presented above, was taught to them (obviously, using another population of patients from the one included in the study) with no discussion of the theoretical background. The scoring of each unit was illustrated and discussed. Following this demonstration, each scored independently the early memories of 15 patients. We then got together to discuss the similarities and the differences in the scoring. This was repeated twice and then we felt that a good grasp of the scoring units had been reached. The early memories of the 40 patients, who gave 103 early memories, were then scored by each judge independently, and the degree of agreement between each pair was computed. Agreement was defined as two scorers assigning the same score or scores to an early memory. In cases where more than one score was assigned, the scores were arranged in order of importance (as judged by the scorer) and the agreement was defined as having at least the same initial scores.

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[a] The early memories throughout the study are quotations from the patients' charts.

[3] I wish to express my appreciation to Rosalyn Spector and Abraham Weiss for scoring the early memories.

Results: Reliability of the Scoring Units. Using the 12 scoring units, the percentage of agreement between each of the three judges J1 = judge 1 J2 = judge 2, L = Levy) is presented in Table II. Chance agreement between two judges is 50%.

TABLE II—Interjudge Agreement on the 12 Units

	Pair of Judges		
	J_1L	J_2L	S_1S_2
Percentage of Agreement	78%	74%	69%

All the agreements between two judges are significant beyond .001 level on the Chi^2 test.

Using the four vertical modes of Table I, the percentage of agreement between the judges is presented in Table III.

TABLE III—Interjudge Agreement on the Four Vertical Modes

	Pair of Judges		
	J_1L	J_2L	S_1S_2
Percentage of Agreement	93%	91%	92%

All the agreements between the two judges are significent beyond .001 level on the Chi^2 test.

Approximately 9% of the disagreements in scoring the four vertical modes are due to: inter-changing "active" with "passive" (5%), "positive" with "negative" (4%).

Interjudge agreements of about 90% are found in the following units: IIa, IIIa, IIb, Ic, Id, IId. These units are the most frequently scored.

Interjudge agreements of 50% and less are found in the following units: Ia, Ib, and IIIc. These units are the least frequently scored. Interjudge agreements of about 70% occur in the following units: IIc, IIIc, IIId.

The interjudge disagreements resulting from insufficient differentiation between the emotional areas are primarily due to interchanging "givingness" with "mutuality": Ib is scored as IIIb, and Id is scored as IIId.

TYPES OF MEMORY AND LEVEL OF EGO INTEGRATION

Procedure: Having scored the early memories, the next step was to search for types based on frequent, reliable and meaningful clusters of modes. It was also planned to look for the relation between types and levels of ego integration. The latter was arrived at by classifying the psychological reports of the patients into two broad groups (1) Patients whose ego structure was fragmented, contact with reality was poor and were evaluated as borderline cases. (2) Patients who were primarily within the neurotic range, whose contact with reality was on the whole fairly adequate. This classification was facilitated by the fact that each report ended up with a short summary as to whether the ego structure was essentially within the borderline or neurotic range. Further comparisons were made between the modes, assumed to be an indication of some of the characteristic ways of approaching emotional situations, with the patient's responses to emotional situations, as assessed from the testing.

Results: Because of the scatter of the 12 units in the early memories of the 40 patients, the number of types would have to be limited. It seemed to be statistically sound as well as meaningful in the context of the theoretical viewpoint advanced earlier, to construct the typology on the basis of the four vertical modes on which the interjudge agreement was in the 90% range. Three types of early memories have emerged, two of which are comprised of both active and passive modes. (1) Ego active—Affect positive and Ego passive—Affect negative. (2) Ego active—Affect negative and Ego passive—Affect negative. The third type is comprised of either Ego passive modes, or Ego active modes only. Needless to say these three types of early memories are used as empirical points of orientation. In practice, the sequence of modes does not perfectly match one of these three types. What is actually done is to look for the best match between the modes and types. To illustrate, sets of early memories that seem to be characteristic of each type and their scoring are to be presented. This is followed by a summary of the psychological report which is then compared to the configuration of modes extracted from the early memories. The three patients are all women in their middle twenties, whose major complaint was of feeling depressed.

Type 1: Ego active — Affect positive and Ego passive — Affect negative.
Early Memories:

1. "My mother used to leave me with a neighbour to baby sit. I remember my mother saying goodbye, like now be a good girl."

   Scoring: Id = Givingness — being separated from a love object.
2. "Mother put me in a nursery school and I remember going there down a flight of stairs below the street."

   Scoring: IIa = Mastery — being on your own.
3. "At the age of four I made in my pants. I could not get out of the nursery school and I cried."

   Scoring: IId = Mastery — failure in self assertion.

In viewing these various discrete modes of the three early memories as a configuration, the ego active — affect positive and ego passive — affect negative type emerges as: A move to be on her own, placed between two sources of "danger": separation from a love object and failure in self-assertion.

Psychological Report: The patient perceived the tests as an intellectual challenge and made a special effort to demonstrate her intellectual resourcefulness. Her high level of intellectual aspiration is associated with her need to present herself as a mature person, meaning that she has freed herself from her mother's control. This position is a defense against its opposite: the wish to behave and be treated like a little girl toward whom love is repeatedly demonstrated. When not feeling approved and rewarded for her intellectual strivings, she experiences this as an emotional rejection, becomes enraged, and wishes to get rid of the frustrating object. But aggression is counteracted by strong guilt feelings, and she ends up directing hostility toward herself and feeling unloved. She recovers from this depressive position by using her characteristic defenses: reaction formation and intellectualization. On the whole, her reality testing is adequate with no signs of major thought disturbances.

In comparing the personality trends emerging from the early memories with those of the testing, we may conclude that the ego active — affect positive mode (mastery) in this example, is paralled by intellectual ambitiousness on the testing. Also in both there is a failure in maintaining it because of the strong opposite feelings of being deserted and bound to fail. From both early memories as well as from the testing, ego integration is assessed as fairly satisfactorily.[4] The intervening variable, the association of guilt with aggression, so clearly seen on the testing, could only be inferred from the sequence of early memories. Her typical defenses of reaction formation and intellectualization were evaluated only on her test report.

Type 2: Ego active—Affect negative and Ego passive—Affect negative.

Early Memories:

1. "I used to throw tantrums and could scream and hold my breath whenever father or mother did not give me what I wanted."

   Scoring: Ib = Givingness — anger toward frustrating objects.

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[4] See previously discussed hypothesis regarding level of ego integration as assessed from early memories.

2. "Mother was in the hospital, and my father and I were at home. We went to the barn. He went up into the hayloft by climbing a rope ladder and I wanted to follow him. I started climbing, the rope began swaying and I fell after being about half up and hit myself on the head."
   Scoring: IIc & IId — Mastery — being the follower leads to failure in self assertion. IIIb — Mutuality — mother is missing and patient is tacitly replacing her.

The ego active — affect negative and ego passive — affect negative is seen, in this example, by expressing hostility toward frustrating objects, followed by an attempt to tacitly replace a rival (mother), and being close to a love object (father). However, this ends up in her failing to assert herself and losing the love object.

Psychological Report: The patient presents herself as a rebel who rejects and attacks social conventions. One expression of this attitude is her attempt to control elderly men and seduce them sexually. This is seen as a defense against feeling that mother has deserted her and she searches for the mother in her relations with men. But she repeatedly feels that men are out to exploit her and ends up feeling hurt which stimulates murderous fantasies of retaliation. These are connected with guilt to which she responds by withdrawing from people and feeling abandoned. Projection and intellectualization are her most prominent defences. Despite these conflicts and defences, she does not show signs of major thought disturbances and has an adequate hold on reality.

The ego active—affect negative mode in the early memories corresponds to her oppositional tendency on the testing. Also in both we see an attraction toward an elderly man, tacit replacement of mother ending up in her being hurt. Reality testing is evaluated by both to be fairly adequate. The guilt and aggression so interwoven in her "oedipal victory", are clearly seen on the testing, but could only be inferred from the early memories. Her typical defences, projection and intellectualization, were evaluated only on the psychological testing.

Type 3: Ego passive—Affect negative and Ego passive—Affect positive.
Early Memories:

1. "I remember my little pussy cat caught in a log and died. There was a trap in the log."
   Scoring: Id = Givingness—being separated from a love object (that is being destroyed).
2. "I remember hiding under the bed when I was little and watching my aunts when they were courting with their boy friends. They held hands and talked and looked at the stars."
   Scoring: IIIc = Mutuality — observing warm relations.
3. "I remember my cousins and my sister used to make fun of me and wrap snakes around my neck and throw snakes at me because I was so nervous."
   Scoring: IIId = Mutuality — being ridiculed by friends.

In this example, the type based primarily on ego passive — affect negative mode with a secondary ego passive — affect positive mode, is portrayed by separation from a love object that is being destroyed, observation of close relations, rather than getting involved in them, because, as the subsequent memory may indicate, of getting emotionally hurt by close relations.

Psychological Report: During the testing, the patient had outbursts of inappropriate giggling, yawned noisily and depreciated the value of the tests. Being unaware of her hostile attacks on people, she is surprised when they reject her, the innocent, well-meaning person. The underlying fundamental conflict is mistrust of close relations with people who are also expected to gratify very strong dependency needs. In her fantasies, sexual closeness is associated with being killed by the lover. Also, she shows a strong tendency toward magic thinking, expressed in her premonition about which of her close relations is going to be killed. Her basic defense mechanisms, denial and projection, are ineffective. This is basically an immature, infantile personality, who shows signs of major thought disturbances, experiences disorganizing anxiety and has weak contact with reality.

Her predominant ego passive – affect negative mode in early memories, corresponds to the feeling of being frustrated and attacked by those she gets close to. Lack of basic trust is seen in both sets of data. Only when she becomes the passive observer of close relations, can she be temporarily safe. In both, her reality testing is assessed as weak. Her major defenses, denial and projection, were evaluated only on the test report.

According to the hypothesis advanced in the theoretical section, types 1 and 2 would show a better level of ego integration than type 3. Table IV shows the relations between early memory types and of ego integration. Types 1 and 2 are combined and contrasted with type 3. Level I refers to fairly adequate hold on reality, while level II refers to major signs of break with reality.

TABLE IV—Early Memory Types and Level of Ego Integration

		Type		
		Types 1 and 2	Type 3	N
Level	I	23	2	25
	II	4	11	15
N		27	13	40

Significant beyond .001 level on the Chi² test.

The results support the hypothesis: types 1 and 2 combined, have achieved a higher level of ego integration than type 3.

Only 2 out of 13 patients produced early memories of type 3 and still had an adequate level of ego integration. Their modes are only affect positive, either ego active or ego passive, with no affect negative ones.

The differentiation between type 1 and type 2 along the level of ego integration is insignificant.

The classification of types according to sex is found to be randomly distributed.

DISCUSSION AND CONCLUSIONS

In their studies of the neuroses, Freud and Adler demonstrated the theoretical and clinical significance of early memories. Freud (1899), in his famous article on "Early Memories," claims that they are essentially screen memories, namely: relatively superficial manifestations of a deeper, underlying traumatic experiences. The ego defends against these anxiety-provoking experiences by forming an innocuous story a few steps removed from the trauma. Though all that is important is contained in the early memories, says Freud, only the psychoanalytic technique enables us to uncover the original trauma beneath the screen memory. Freud's approach to the study of early memories seems to be primarily genetic in nature. Adler (1930, 1932), in contrast to Freud, views the "earliest memory" related by the patient as revealing his "style of life," namely: the person's major trends in goal-directed behaviour, aimed at achieving superiority and compensation for basic feelings of inferiority. In the present study, the vantage point for analyzing early memories is circumscribed and focussed on some of their formal aspects, leaving out their genetic-dynamic meanings. It is here postulated that a series of early memories as related by the patient, reveal significant and essential modes of his approach to emotional areas, such as "givingness," "mastery" and "mutuality." This point of view, structural in nature, concentrates on certain characteristic tools of coping with emotional situations as inferred from a series of early memories. Content aspects of early memories, commonly loaded with unique information about the person, have not been included in the present scheme. The approach presented here is similar to Adler's insofar as the manifest aspects of early memories are assigned significance. However, Adler deals with the earliest memory to demonstrate the individual's style of life, whereas, here the focus is on a configurational analysis of several modes of approaching emotional situations. One early memory, according to this approach, may be totally misleading insofar as it reveals only a partial picture of the individual because it frequently results in a general and unspecific description. Only through the understanding of the interaction and fusion of modes does a dynamic, quite unique picture of complimentary and contradictory approaches to emotional situations emerge.

Twelve units for analyzing early memories are defined, used for scoring and tested for reliability by three independent judges. There was about 74% agreement between the judges following a relatively short period of training. In using only the four basic modes, the agreement between the three judges was over 90%. It seems that the scoring system yields satisfactory degree of correspondence and it is also easily communicable. The reliability study indicates that more precise definition of the scoring units and longer training period for the judges, would probably increase the level of reliability.

On the basis of comparing the modes of early memories with the summaries of the psychological reports, as demonstrated in the three cases reported in this study, the modes tend to correspond to characteristic ways of coping with emotional situations as evaluated by the testing. This seems to be a fruitful approach which so far has only been demonstrated and needs to be tested more rigorously. The comparisons demonstrate further that similar presenting symptoms (the three cases presenting depressive symptoms), would tend to bring forth significantly different sets of early memories. The latter, being fantasy material, may then be utilized for understanding of the presenting symptoms in the context of the person's characteristic approaches to emotional situations.

The construct "Type of Early Memory" is introduced in this study and defined as various meaningful combinations of modes. On the basis of the pilot study it was hypothesized, that memory types and level of ego integration would be associated. Memory types comprised of narrow range of modes, lacking a relative balance between the opposite modes, would be associated with a very inadequate level of ego integration, the so called borderline cases. But memory types comprised of a relatively wide range of modes with balance between the opposite modes, would be associated with a fairly adequate level of ego integration, commonly found within the neurotic range. Empirically, three types of early memories, comprised of various combinations of the four modes (with reliability in the 90% range), have emerged in the study. 1. Ego active – affect positive/Ego passive – affect negative, 2. Ego active – affect negative/Ego passive – affect negative, 3. Either Ego active or Ego passive modes. According to the hypothesis, types 1 and 2 combined would have a higher level of ego integration than type 3. This was born out by comparing the two groups and their level of ego integration as assessed from a battery of projective tests.

The following explanation is offered for the association between "type" and "level." The modes, defined as characteristic means of approaching emotional situations, may be viewed as secondary and tertiary sets of defenses, namely: relatively autonomous tools for adaptation. In the type comprised of narrow range of modes in which the ego passive – affect negative or ego passive – affect positive is the predominant one, these defenses have probably been overwhelmed by anxiety, became ineffective and broken down. What then becomes apparent are deep-seated feelings of being abandoned, destroyed, a generalized sense of being a failure and a passive longing to be taken care of. On the other hand, in types comprised of some variety of modes and showing a fair balance between the opposite modes, e.g. Ego active – affect positive/Ego passive – affect negative, the level of anxiety is not so disruptive to the basic defenses. There are tendencies to form dynamic shifts between active mastery and passive failure which indicate the inner strength for adequate hold on reality. This hypothesis regarding the nature of the types remains a suggestion for further investigation.

As to the differentiation between the first type (ego active – affect positive/ego passive – affect negative) and the second type (ego active – affect negative/ego passive – affect negative), both on the one hand seem to defend against the threat of being overwhelmed by "outside" dangers of being abandoned, destroyed and trapped (ego passive – affect negative mode). But, on the other hand, note the difference in the manner of coping with the "same" dangers. Type I, may be experiencing the feeling of being caught between the two opposite trends, attempts to defend against the dangers by making a move towards independence. Type II, is coping with these dangers by attacking the outside enemies, thus trying to eliminate them. While Type I, may reveal a weak ego because of the tendency to regress temporarily, Type II may present a show of ego strength by overt attack.

A comment about the research design. The units of the analysis are derived from a theoretical point of view about the nature of early memories. Memory types could be envisioned on the basis of the various combinations and permutations of the modes. The reliability study shows that three types could be reliably scored. Inferences derived from the test data rather than the discrete scores and themes, were used as the basis of comparison with early memory types. This approach has been found fruitful in the Menninger Psychotherapy Project, as exemplified by Siegal and Rosen (1962). It is their assumption that meaningful results, in using repeated psychological testing, could be achieved by comparing dynamic configurations at various points in the treatment process, rather than investigating the changes in isolated scores. In this study also the types of early memories were compared with dynamic statements derived from the test data.

Analyzing early memories from the vantage point discussed in this study, seems to provide insights into the patient's characteristic tools of approaching emotional situations. We have been making it a routine practice to collect early memories in the course of testing and integrate their yield with the usual battery of tests. The task of producing early memories in response to the question "Go back as far as you can and tell me the first memory that you can remember" followed by requesting more memories from early childhood, is relatively easy and simple. In the course of recollecting, some may experience temporary revival of traumatic situations; some may use the occasion to point out that certain psychopathological aspects revealed in the early memories, must be the cause for their state. The examiner commonly experiences that the patients do get emotionally involved in the process of recollecting. The patient is obviously unaware of how the modes are integrated and the meanings ascribed to their combinations. Therefore he is unable to manipulate his early memories to fit his conscious image of himself.

Further research is warranted with more representative clinic populations, divided into acceptable and reliable diagnostic groups. These groups could then be studied as to their specific modes and memory types, and be compared with psychological test data. A matching nonpsychiatric population should also be studied.

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The Psychological Evaluation of the Organic Child

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Summary: A new test for psychological evaluation of brain conditions in children is presented (ETO C). This is an objective-type test consisting of drawing, blocks and digits, which lends itself as well to a qualitative analysis. A study is described in which the test results of two groups of 6-to-9-year-old children are compared, one group being organic, containing twenty children, the other—non-organic containing thirty children. The test results for the organic group proved to be significantly higher than those of the non-organic group on all three parts of the test.

Guiding lines as to the practical selection of the appropriate ETO form and the norms to be applied according to the subject's age and intelligence level are given. There then follows a discussion on the qualitative aspects of the test, and the meaning of its results. Finally, the relation between the psychological and the neurological evaluation of organic conditions is discussed and for practical reasons it is suggested that a differentiation be made between a neuro-organic and a psycho-organic syndrome.

Psychologists working with children are frequently asked to give a psychological evaluation of a child's cerebral condition. Cases requiring such an evaluation are mainly of the following three types:

(1) Children after commotio cerebri, a brain disease or any other disease that may have affected the brain either directly or indirectly. In these cases it is important to establish the extent to which the brain damage has affected mental functioning. In most cases, the child's general intelligence level does not suffer to a marked degree. Certain faculties, only, would be affected. These include the perceptual faculty, the ability to concentrate, visual-motor coordination, memory, and abstract thinking, etc. The psychologist is therefore called upon to provide the means whereby the impairment of these specific abilities can be measured.

(2) Children *suspected* by the neurologist to be suffering from encephalopathy (brain disease). In such cases the evaluation by the psychologist is enlisted as an aid in the diagnostic clarification.

(3) Children suffering from functional disorders such as behaviour disorders, (Brown & Solomon, 1942; Gottlieb, Ashby & Knott, 1947; Solomon, Bradely & Jasper, 1938) or from specific scholastic problems such as reading disability, which, as experience has lately shown, may have developed on central-organic grounds. Recent E.E.G. research has proved that a large percentage of children with severe behavior problems, enuretics and other types of disturbed children show cerebral dysrhythm. Studies of this kind present the psychologist with an obvious challenge. He is called upon to provide the psychological means for testing the organic hypothesis regarding these types of children's disorders.

In all the above cases an accurate psychological evaluation of the child's brain condition is also of decisive importance in determining the most suitable type of treatment.

The psychological tools in common use for diagnosing organicity leave much to be desired (Hoedemaker & Murray, 1952; Armitage, 1946). This holds not only for adults, but especially for children. For the most part, psychologists apply tests which have been planned for other purposes, e.g. Wechsler's Intelligence Scales and Rorschach's technique. A number of psychologists make use of Goldstein's tests (Goldstein & Shearer, 1941) and the Bender Visual Motor

Gestalt Test. As yet, however, the validity of these above measures has not been satisfactorily established. Furthermore, most of these tests do not yield objective results. The examiner, therefore, is often left in doubt when he has to interpret the results.

In 1959 this author published an objective-type test for diagnosing an organic condition (Elizur, 1959). This test has proved to differentiate between an organic adult group and a non-organic one, at a significant level. The test has certain technical advantages, – it is easy to handle, requires a relatively short time for its administration and scoring, and in addition to the quantitative scores, yields itself easily to a qualitative analysis. The test can be used with subjects from the age of ten on.

The present study is intended to present an easy parallel form of this test to be used with younger children. This test will be referred to as E.T.O.C. ("Elizur's Test of Organicity for Children") as compared with E.T.O.A., the test for adults. The plan of presentation is as follows:

Firstly, the test is described with its administration and scoring system. For the reader's convenience, the new test is compared throughout with the previous test, so that he may become acquainted with both forms at the same time.

Secondly, an experiment is presented to demonstrate the test's validity. The results are compared again with those of the 1959 ETO A study.

Thirdly, practical indications are given to guide in the selection of the appropriate ETO form and norms in accordance with the subject's age and intelligence level.

Following this, a qualitative analysis of the results is proposed, which is parallel to that offered for the ETO A.

Finally a discussion of the test results' meaning is offered and how these results compare with those achieved by the neurological examination on the one hand and the subject's psycho-organic traits on the other hand.

For a more detailed exposition see Elizur (1965).

THE TEST[1]

Both ETO forms are composed of three parts: Drawings, Blocks and Digits. I preferred to use a *combined-type* of a test because the brain damage does not always impair the same mental function. In every case it may affect a different function.

I chose the particular testing material because it has proved itself in previous studies of organic disorders.

The test's main innovation lies not in the material used, but in its scoring system. The two guiding principles in developing this system were the following:

(1) Instead of following the usual procedure of scoring either success or failure it was decided to evaluate the *degree of failure* and to score accordingly.

(2) To score only such failures as have been found to be typical of people suffering from brain damage.

Drawings

In each ETO form there are four drawings. These are presented to the subject one after the other. He is asked to study them carefully so that he will be able to reproduce them later from memory. There is no time

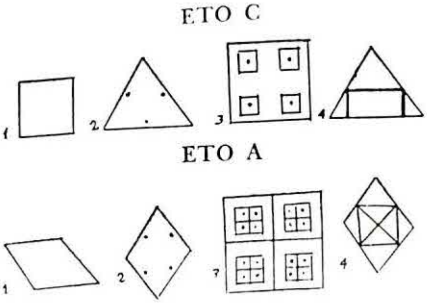

FIGURE 1

Drawings Designs. Reduced to one-sixth size.

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[1] Test cards material included in Elizur (1965).

limit for the presentation. The examiner removes the card only after the subject has indicated that he is finished with it. A glance at the drawings in both forms (see Table I) should suffice to show the basic resemblance between them, except that those of the children's form are simpler and easier to copy.

The *scoring* is the same for both forms and is calculated according to the following rules.

	No. of Points
1. Each misdirected line	1
2. Each line added or omitted	2
3. Each dot added or omitted	1
4. Each dot misplaced	½
5. Omission of *all* dots in drawing 2 or drawing 3 in ETO C, or in drawing 2 in ETO A	2
6. The whole figure 1 placed at a wrong angle (both forms).	2
7. Repeated failures in all four little squares of drawing 3 are scored only once (both forms).	
8. Any one of drawing 4's inner squares' corners (in both forms) that does not touch the triangle (in form C) or the diamond (in form A)	1
9. A circle instead of dot in drawing 2 or 3. (both forms)	1
10. 2 *or more* circles instead of dots	2
11. Maximum points for any drawing	10

Blocks

In both forms the subject is required to build four constructs in succession, using four Kohs blocks. These constructs are in accordance with a model placed before the subject and which remains there until he has finished. At the beginning the examiner demonstrates what is to be done. The sample and the four constructs are illustrated in Figure 2.

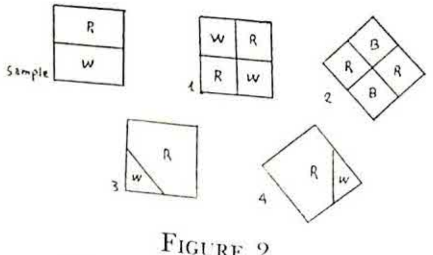


FIGURE 2

Block Designs (both forms).
Reduced to one-sixth size.

In the blocks sub-test the difference between the two forms is the following. Adults are shown *pictures* of the sample and of four constructs, whereas children receive a concrete demonstration, using another four blocks.

The examiner should note whether the subject succeeds, and the time taken. In case of failure, the examiner records the design made by the subject. This serves as a basis for the scoring.

For both forms the *scoring* rules are as follows:

	Points
1. Each block located in the right place and on its right side but in the wrong direction	1
2. Each block located in the wrong place	2
3. Each block placed on a wrong side	2
4. The whole design misdirected	1
5. Maximum points on any design	5
6. Time. Additional points are added for time according to the following tables which are different for children and adults:	

ETO C	*Points*	*ETO A*	*Points*
30-39 sec.	1	16-19 sec.	1
40-49 sec.	2	20-29 sec.	2
50+sec.	3	30-39 sec.	3
		40-49 sec.	4
		50+sec.	5

Digits

In both forms the examiner reads aloud a series of twenty digit-groups, each digit-group containing the same number of digits. These are recited at the rate of a digit per second. The subject is asked to repeat them. The examiner records the way the subject reproduces each digit group according to the method indicated below. The sole difference between the two forms lies in the size of the digit-groups. In ETO C each contains four digits, while in ETO A each contains five digits.

The *scoring* and recording method are as follows:

Points

1. The displacement of a digit — 1

   In most cases a reversal of 2 adjacent digits appears. This is recorded by the sign ⌣ underneath these digits and scored 2. Thus, for example, $84\underset{\smile}{67}9$ means that the subject has repeated 84769 instead of 84679. He is given two points. These are recorded after the number, in parentheses, i.e. $84\underset{\smile}{67}9$ (2)
2. The substitution of a digit — 2

   The examiner should record the digit given by the subject under the appropriate one. Thus, for example, $84\underset{5}{6}79$ (2) means that the subject said 84579 instead of 84679 and is penalised by two points.
3. The addition or omission of a digit — 2

   The additional digit is written under the appropriate place and the omission is marked by a line under the missing digit (or digits). Thus $84\underset{5}{\ }679$ (2) means that the subject repeated 845679 and was given two points; $8\underline{46}7\underset{8}{\ }9$ (6) means that he said 8789 and was alloted six points.

The summing up of the points is done for each series of ten digit groups separately. 14/20 means that the examinee attained fourteen points in the first ten digit group series and 20 in the latter ten.

THE EXPERIMENT

The Subjects

The present experiment compares the test results achieved by two groups of children, the one group consisting of twenty "organic" subjects and the other of thirty "non-organic" subjects.

The organic group was taken from the files of children already examined in the Neuro-Psychiatric Clinic of Kupat Holim, Zamenhof, Tel Aviv. The principles of selection were to take *all* organic children from six to nine, of at least normal intelligence, that have been given the ETO C in the last two years. These children had previously been diagnosed as organic cases, by competent neurologists. They included cases of epilepsy, encephalopathy, post commotio cerebri, post brain operation and post encephalitis.

The non-organic group was composed of 30 school children from grades 1 to 4 (ages six to nine). The school chosen was one of average standard, and was situated in Bat Yam. The class teachers were asked to select a random sample of children who did not manifest any special behavioral problems or any specific scholastic difficulty, such as a reading disability.

The two groups were matched for age (average age eight years) and intelligence (average I.Q. 102).

Results

Table I summarizes the main results. These were significant for all three parts of the test.

TABLE I—Comparison of Mean Scores of the Organic and Non-Organic

Group	*Drawings*	*Blocks*	*Digits*
Organic (N=20)	14	9	17/22
Non-Organic (N=30)	5	3	4/5

It is interesting to note that the results achieved in the present experiment with the ETO C on children, are almost identical with those achieved in the previous experiment with the ETO A on adults. This shows that the ETO C is as suitable for children aged six to nine as the ETO A is for adults.

We may, therefore, use the same "organic norms" with the ETO C as were used with the ETO A. Thus any subject who attained a score on any subtest at least as high as the organic norm may be regarded as having an organic finding on that part of the test.

The norms are:

for Drawings 10 points
for Blocks 5 points
for Digits 10/10 or 0/15 points

Now, if we make the same assumption in the ETO C as we made in the ETO A, namely that a subject is considered "organic" only if he shows organic findings on at least two subtests, we shall find that the ETO C has correctly diagnosed 80% of the organic cases, and 90% of the non-organic cases. These percentages are similar to those of the previous experiment. (86% and 90% respectively).

PRINCIPALS OF TEST SELECTION AND NORMS

As result of clinical experience with both ETO forms in a neuro-psychiatric clinic during several years I arrived at the following guiding principles in choosing the appropriate test form and norms for various age and intelligence levels;

1. With children aged 6-9 of normal intelligence use the ETO C with the norms mentioned above, namely, for Drawings 10 points, Blocks 5 points, and Digits 10/10 or 0/15.

2. With children aged 10 to 13, of normal intelligence, use the ETO A with the following norms:

Drawings	15
Blocks	8
Digits	15/15

3. With subjects from 14 years onwards, of normal intelligence, apply the ETO A with the norms indicated under 1. In all cases a subject who has achieved scores as high as the norms or higher on two subjects is considered organic.

4. Whenever the subject's intelligence deviates from the average (either above or below) — his mental age level should be taken as a basis for selecting the test form and norms.

5. Since both tests are very similar in their construction it is possible to apply different parts of them to the same subject. For example an 8-year-old child who excels in remembering digits may be given the 5-digit-series, whereas a 12-year-old-child who exhibits unusual difficulties in the 5-digit-series may be given the 4-digit-series. The same holds true for the other subtests.

6. Subjects able to repeat 7 or 8 digits on the Wechsler correctly should be given 6- or 7-digit-series, namely, one digit less than the score attained on the Wechsler.

7. Subjects who have failed completely in 4-digit-series (either adults or children) may be given 3-digit-series. Experience has shown that severe organic cases fail even on these diminished series.

8. In examining children of less than 6 years (from 3-4 years) it is sometimes possible to acquire a *general impression* whether an organic condition exists by using 3-digit-series.

It should be emphasized again that all the above principles are based on clinical experience only and should be verified by appropriate experiments.

QUALITATIVE ANALYSIS

The qualitative analysis of the ETO C is similar to that of the ETO A as described in our previous study. Here, too, we shall start our discussion with the Drawings and Digits, which have much in common, and then proceed to discuss the blocks.

Drawings and Digits

In both subtests the subject is confronted with a series of stimuli (visual and auditory). He is asked to retain them, and then to reproduce them correctly (to draw or to repeat them verbally). In order to succeed in the task the subject has (1) to perceive the stimuli fully and correctly, (2) to retain them all, and (3) to keep track of their correct spatial (Drawings) and temporal (Digits) order.

The main types of failures are:

1. *Omission*. A part of the drawing or the digits is not perceived or retained by the subject. In most cases the subject is aware of this failure himself and apologizes for it.

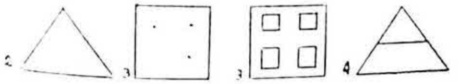
2. *Confabulation*. The subject fills in the "void space" by inserting incorrect items aroused in his mind by way of association.

3. *Perseveration*. Previous test impressions continue to influence the subject's mind and hence falsify his reproduction. In this case, as well as in confabulation, the subject himself is unaware of his failure.

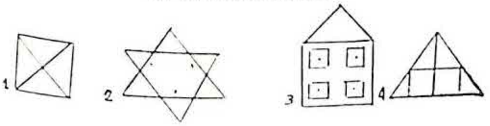
4. *Disorientation.* The subject reproduces all the original stimuli but puts some of them in the wrong place. This type of failure reflects the well-known difficulty of the organic patient to orient himself properly in space, as well as in time.

Figure 3 gives examples of the above-listed typical failures in the Drawings.

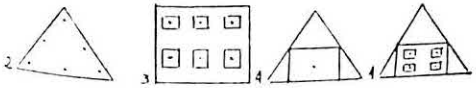
1. Omission



2. Confabulation



3. Perseveration



4. Disorientation

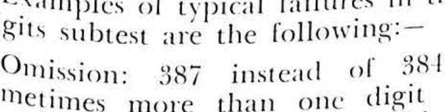


FIGURE 3.
Failure Types in the Drawings

Examples of typical failures in the Digits subtest are the following:—

Omission: 387 instead of 3847. Sometimes more than one digit is omitted, and occasionally, a subject may be unable to repeat any of the digits at all in a digit group. One such patient explained spontaneously: "It was as if I had fallen asleep for a while." Such a phenomenon is akin to the temporary loss of consciousness in petit mal.

Confabulation: 38947 instead of 3847.

Perseveration: 3887 instead of 3847.

Disorientation: 3487 or 3784 instead of 3847.

5. *Compensation.* Some subjects, especially intelligent ones, succeed in reproducing the drawings and digits through applying some technique which enables them to make use of a compensatory mental faculty instead of the deficient one. Thus, for example, a subject may carry out writing movements in the air while listening to the digits, or he may repeat each digit silently after the examiner. One subject looked at drawing No. 3 and "translated" the visual stimuli into verbal ones by saying to himself: "A large square with four little ones with dots inside."

6. *Sensitivity to noise.* This may be noticed particularly in the case of the Digits Subtest, where the slightest noise coming from outside may interfere with the subject's ability to concentrate to such an extent as to cause a total blocking. The organic child is extremely sensitive to noise.

7. *Early Fatiguing.* This, too, is a characteristic symptom of the organic person, which becomes particularly manifest in the Digits subtest. Early signs of fatigue may be noticed either *quantitatively,*—by an increased number of failures in the second ten series —or *qualitatively,*—the subject may experience a feeling of uneasiness, a severe headache, or a spell of dizziness. Some subjects may react by becoming critical of the test or even of the examiner.

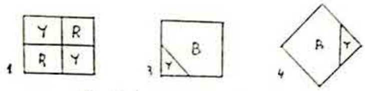
Blocks

This subtest taxes the subject's ability of visual-motor-coordination, which is quite often deficient, in the organic person. In order to succeed in this task the examinee must have the ability to perceive and then reproduce correctly the visual configuration before him, paying attention to its *colors, form* and *spatial arrangement.* Thus the typical failures are:

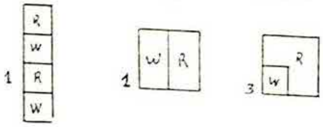
1. *Disregard of color.*
2. *Disregard of form.*
3. *Disregard of location.* (Disorientation)

Examples are given in Figure 4.

1. Disregard of Color



2. Disregard of Form



3. Disregard of Location

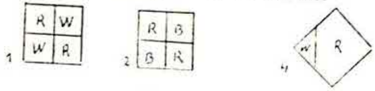


FIGURE 4.
Failure Types in the Blocks.

4. *Slowness.* The organic sometimes shows a motor-retardation which manifests itself particularly in the Blocks subtest.

DISCUSSION

The crux of any test concerns the significance of its results. Before going into this problem with regard to both forms of ETO it is advisable to consider the general issue of the neurological versus the psychological evaluation of organic brain conditions, and their relation to what might be called the "psycho-organic traits." The latter are the typical defects and deficiencies manifested by the organic patients in the mental, emotional, motoric and behavioural areas.

When psychologists were called upon to assist the neurologist in diagnosing a cerebral condition they had to evolve such measures as would yield results that would match both the psycho-organic traits and also the results of the neurological examination. This was also my point of departure when designing the ETO's. Let us now examine the extent to which this two-fold purpose was fulfilled.

The first point to be considered is the degree of accord between the ETO results and those of the neurological examination.

Both the 1959 experiment with ETO A and our present ETO C study suggest that a good correlation exists between the ETO's and the neurological examination. From this it might appear that positive ETO results generally hint at a neurological brain damage.

The matter, however, is more complicated. Years of experience with the ETO and other psychological tests on the part of other psychologists and myself show that cases may occur which show positive neurological findings but no psychological findings of organic type. On the other hand, there are, perhaps, still more cases which the psychological evaluation may classify as organic whereas they reveal no positive neurological findings.

In order to avoid complications and misunderstandings between neurologists and psychologists I suggest a differentiation be made between a *neuro-organic syndrome* arrived at by the neurological examination and a *psycho-organic syndrome* arrived at through the psychological evaluation. Of course, a close relationship exists between the two syndromes, as manifested by the large number of cases they have in common. They are, however, not identical, because there are still some cases which are only neuro-organic, and others which are only psycho-organic. The relationship existing between the two syndromes can be illustrated by two overlapping circles. (Figure 5).

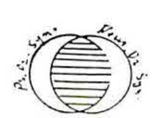


FIGURE 5. Schematic Illustration of the Relationship between the Neuro-organic and Psycho-organic Syndromes.

We may assume that the relationship between the two syndromes is largely dependent upon the accuracy of the measuring instruments applied by both the neurologist and the psychologist. The more precise these are, the closer the two syndromes become. Thus, the area common to the two circles in our illustration increases.

At present we may say that *positive test findings reflect some defective, deficient or immature state of the brain which in a number of cases is corroborated, also by the neurological examination*. Cases where such a verification is lacking consist mainly of the brain immaturity type, or of the diffused brain damage type.

It should be noted that at many times the psychological evaluation also has a *prognostic* significance. In a number of cases the positive ETO results have served as a warning signal for neurological symptoms that appeared later on. The prognostic value of psychological testing in organic cases was already emphasized by Wechsler when he noted (Wechsler, 1944) "the value of the Scale in detecting possible organic brain conditions prior to manifestation of neurological symptoms."

We come now to the second point in our discussion, the comparison of the ETO results and the psycho-organic traits.

While, as yet, no objective research has been carried out to ascertain the extent to which ETO findings correlate with the "psycho-organic traits" such a research is in planning. The *impression* my clinical experience has given me, however, is that a correlation of this type does exist. I even believe that this correlation is higher than that which exists between the neurological findings and the psycho-organic traits. In other words, a person complaining of difficulties in concentration and memory, who exhibits a psycho-motor restlessness and is ineffective in controlling his temper is not only likely to reveal positive ETO signs, but the likelihood of this happening is greater than the likelihood of his revealing positive findings in the neurological examination.

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An Investigation on the Reliability of Human Figure Drawings

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Summary: A review of the literature showed that prior reliability studies on the DAP have generally utilized atomistic graphic indices, while clinicians have claimed that the use of the DAP, in practice, has been to obtain global, personalized, impressions. Twenty Ss were twice administered the DAP with a five-week interval. Results showed that each of 9 judges were able to match the drawings of the same S from the two administrations at well beyond the .001 level of significance. The three judges with greatest DAP experience matched the 20 sets of drawings perfectly. The mean differences in correct matches for the three groups of judges (Ph.D. Clinical Psychologists, graduate students in Clinical Psychology, and college freshmen) although suggestive, were not significant. Results were contrasted with the findings of other approaches discussed in relation to other studies, and a number of research implications were noted.

PROBLEM

Sundberg's (1961) recent survey of clinical tools used in psychological testing, indicated that the Draw-A-Person Test ranks second only to the Rorschach in frequency of usage. Sundberg also noted that research publications dealing with the DAP were a sharp exception to a general positive correlation between rank of "frequency of usage" of a psychological test, and number of publications. The dearth of material on the DAP seems particularly glaring in the area of reliability studies.

The reliability of scores is basic to the use of any test. Granick and Scheflen (1958), however, have emphasized the difficulty of devising satisfactory objective scoring procedures for projective techniques and noted that "the reliability of scoring, in effect, is dependent on the reliability of judgments (p. 138)." The problem, essentially seems to be the development of objective, communicable scores which reflect the integrity of "Gestalt" of the performance of the individual tested. In discussing the problems of reliability of projective tests, Granick and Scheflen point out that there have been three traditional approaches to reliability: (a) judgment reliability as measured in terms of agreement between judges rating the same data; (b) temporal reliability based on repeated administrations of the same projective test to the same individual are expected to produce stable components (but not identical responses); and (c) internal reliability—comparison of two or more separate parts of the same test data. These writers conclude that an overall statistical reliability for a projective test is not feasible. An alternative offered is to study the reliability of certain aspects of a projective device. "The traditional concepts of reliability need not be lost in dealing with projective tests. What is necessary is the adaptation of test data to available techniques without destroying the global or clinical quality of the test response (p. 141)."

In introducing the DAP as a projective device, Machover (1949) states that "structured and formal aspects of drawings—size, line, placement, etc.—are less subject to variability than content aspects (p. 6)." Such an inference suggests the reliability of specific graphic indices, *but does not necessarily suggest a reliability of the projective aspects of the test itself.*

There have been a number of investigations on the reliability of specific graphic indices of human figure drawings. Gunderson and Lehner (1949) suggest a line of research employing reliability of ratings of graphic traits used for diagnosis. In a later publication (1958), the same authors report that percent of agreement between judges of graphic traits was 90.5%. Bradshaw (1952) utilized the test-retest method. He considered twenty-five body areas that were scored for 17 possible kinds of treatment. Percent of agreement of two judges was reported for each treatment. Results showed that the highest percent of agreement was in rating the drawing as a whole. Swenson (1957) tends to disparage the use of the DAP as a projective tool. Specifically, he criticizes the "percentage of agreement" method used by Lehner and Gunderson, and Bradshaw, and argues persuasively that "percent of agreement does not equal reliability." Moreover, neither Lehner and Gunderson, nor Bradshaw reported the base rate of occurrence of each structural aspect observed. Thus, concludes Swenson, "these studies do not show reliability of the DAP (p. 463)."

Since validity implies reliability, some researchers have stressed validity and thereby bypassed direct approach to the problem of reliability. Accordingly, a number of authors have pointed out the validity of various projective indices of the DAP. Hoyt and Martin (1959) found placement and size of figure drawn to be related to manifest anxiety scores. Schmidt and McGowan (1959) reported that figure drawings differentiated between physically disabled and normals. Bodwin and Bruck (1960) found a significant correlation between self-concept as reflected in the DAP and as assessed by an interview. Kamana (1960) found similar results when measures of self-concept obtained by a Semantic Differential and DAP were correlated. Goldstein and Rawn (1957) reported that specific aggressive details were related to other measures of aggression. There have also been reports of negative findings when specific indices were applied to the DAP. Starr and Marcuse (1959) in a replication of Bradshaw's study, failed to find significance. Strumpfer and Nichols (1962) reported that sixteen DAP measures failed to differentiate normals, neurotics, and schizophrenics. Sherman (1958, 1958a) and Whitmyre (1953) have both found support for the hypothesis that artistic ability, and not personality projection, is the primary factor in human figure drawings.

There is a basic and general criticism that can be leveled at all of the cited studies. Namely, research in the area of evaluation of figure drawings has tended to deal with specific variables in the drawing (shading, centeredness, etc.) while use of the test in clinical settings has been to obtain general impressions of behavior trends or personality organization. Arbit, Lakin, and Mathis (1959) succinctly point this out by suggesting that the dimensions of the response, *i.e.*, degree to which a figure drawing reflects aspects of self image and/or personality problems, have not yet been specified. They question whether any clinicians rely upon specific indices and attempt to relate them to specific concepts. It seems more likely that clinicians view the drawings as a personalized expression of an individual's behavior orientation. However, research in the area of diagnostic evaluation from figure drawings has tended to deal with specified factors in the drawings. The fact that many studies show negative results may only indicate that the difficulty is one of ambiguity of diagnostic usage which has resulted in research unrelated to the more relevant aspects of the drawings.

Other writers, Zimmer (1956), Rosenzweig (1960), and Laane (1960) have all criticized studies which have attempted to measure specifically described or narrowly defined variables in working with the DAP. Albee and Hamlin (1949) indicate that the degree to which interpretation is determined by the specific elements, rather than intuitive overall impressions is not clear. "Presumably, interpretation depends on specific elements and their synthesis. Global judgments may or may not involve a synthesis of specific elements. Clinicians make judgments and interpretations with little conscious attention to specific molecular factors of constant significance, but rather as a result of global impressions of unverbalized comparison of a present drawing with past experience of "intuitive" or insightful impressions (Albee and Hamlin, 1949)."

To date, no reliability study of the DAP that has utilized such global impressions as criteria for judgments is known to the authors. Presumably, the personality of the individual has an enduring organization which should be reflected in his human figure drawings. Thus, the drawings of the same person over a period of time should reflect the more enduring, stable components or characteristics of the personality. More specifically, it can be hypothesized that human figure drawings of the same individuals should exhibit a sufficient degree of stability over a period of time to be identified as having been drawn by the same person. The purpose of this study was to test such an hypothesis.

METHOD

Ss were 20 freshmen and sophomores (11 female, 9 male) from an Introductory Psychology course. All Ss volunteered. The DAP was group-administered on two occasions. Procedure was identical in both administrations. Ss were given three sheets of 8½ x 11 plain white paper and a No. 2 lead pencil. Instructions were simply: "You will be asked to make two drawings, and given six minutes for each . . . Draw a picture of a person." Any questions were reflected by "Just draw it as you think a person looks." Six minutes after Ss were told to start, E instructed them: "Now take a second sheet of paper and draw a person of the opposite sex." Six minutes later, Ss were told to stop, and to put identifying information on a third sheet. The two drawings were then inserted in the folded third sheet and collected. The interval of time between administrations was 5 weeks. After each administration, drawings were stapled together and assigned a number from a table of random numbers.

Nine judges were chosen to match the drawings. Three were Ph.D.'s from the clinical section of the Department of Psychology; three were graduate students majoring in clinical psychology; and three were freshmen college students who had not yet had a psychology course. All judges were male. Drawings were separated into two groups. Each group of drawings consisted of the twenty sets of drawings obtained from the two administrations. The sets of drawings within each group were in the same initial order for all judges. Instructions to the judges were as follows: "Here are two groups of drawings. Each group contains 20 sets of drawings that were obtained from the same twenty subjects at two different times. Your job will be to match the drawings that were done by each subject." Judges were then given the drawings without further directions. Time and methods of matching were not recorded.

RESULTS

The number of correct matches for each judge was recorded. The Ph.D.'s matched 18, 20, and 20, out of 20 respectively. The three graduate students matched 16, 18, and 20; and the three freshmen matched 8, 10, and 18. According to the binomial distribution, all nine judges matched the drawings at far beyond the chance level ($P < .001$ that more than 5 correct matches could be made).

Six sets of drawings were matched correctly by all nine judges. Of these, four were drawn by male Ss. Of Ss whose drawings were incorrectly matched, mean number of incorrect matches for females was 1.91, for males 1.44. There were no sets of drawings incorrectly matched by more than 4 judges. The mean number of correct matches for the three groups combined was 16.4. For each group, the number of correct matches was 12.0 for freshmen, 18.0 for graduate students, and 19.3 for Ph.D.'s. The difference between means of the Ph.D. and freshmen groups was treated statistically, but results were not significant.

(t=1.66, df=2, .15<P<.10).

Discussion

The procedures used in this study do not rely on specific indices, and therefore the results are not necessarily contradictory to the results of former studies of DAP reliability (Sherman, 1958; Starr and Marcuse, 1959; Swenson, 1957) which employed only specific indices. Whereas before, the methods of criteria of judgment were in question, here the *ability to judge* was measured. Whereas specific indices have been found to be unreliable in these other studies, here the ability to match drawings done by the same individuals was found to indicate a high reliability. However, the conclusion reached by the authors just cited, *i.e.* that the DAP is an unreliable test, was not supported by this study. In that there was not one S whose drawings were not matched by at least 5 out of the nine judges, and in that judges were able to match an average of 16.4 drawings of 20 (P<.001), the data certainly indicate that there are reliable aspects to human figure drawings. However, the conclusions drawn by certain authors are in direct opposition to the results of this study. Starr and Marcuse (1959), and Strumpfer and Nichols (1962) have argued that the lack of consistency of specified aspects of human figure drawings suggests the inefficiency of the DAP. Swenson (1957) concluded that the DAP as a tool of personality assessment is of doubtful value. These studies however have all employed methods which measured only parts or aspects of the drawings. In this study the drawing as a whole was judged without specific reference to narrowly defined indices. It is, therefore, suggested that a method which employs a global or "intuitive" impressions of the clinician as the basis of judgment is more appropriate than the atomistic methods which use more carefully defined but perhaps useless and irrelevant indices.

Of note is the markedly different mean number of correct matches for the three groups of judges. The freshman judge who matched most of the drawings is an art student with some experience in judging drawings. The graduate student who was able to match all of the twenty drawings has had extensive experience with the DAP. Hardy (1960) has suggested a linear relationship between experience with the DAP and diagnostic accuracy in using the DAP. The data of this study seem to indicate support for such a relationship.

In this study the human figure drawings themselves, rather than their projective aspects, were the central core of interest. The results would suggest that a similar approach to the reliability of measures of personality variables in human figure drawings may also prove fruitful. The suggested relationship between experience and reliability and/or validity of human figure drawings as technique of personality assessment is obviously in need of further verification.

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Figure Drawing Anxiety Indexes: A Review of the Literature

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Summary: The authors reviewed 51 studies of human figure drawings with reference to 21 anxiety indexes. The research findings for each of 21 indexes with traditional clinical interpretation were categorized as: a) in agreement b) in disagreement: opposite direction, or, c) nonsignificant. The authors conclude that on the whole, research results seem to uphold the validity of a number of anxiety indexes. A total of 147 findings were found to be in agreement with traditional interpretation, while only 30 findings were significant in the opposite direction, and 78 findings were nonsignificant. Omission, distortion, detail loss, line pressure increase, heavy line, size increase and decrease, head simplification, and trunk simplification have consistently yielded significant results in the expected direction (increase indicates anxiety). Evidence was less consistent for reinforcement, line discontinuity, light line, vertical imbalance, delineation line absence, and transparency. Some studies found significantly *less* shading, hair shading, erasure, reinforcement, placement in the upper left hand corner and less emphasis line in situations where *more* was predicted. The article includes a discussion and an interpretation of these findings.

Despite reports of equivocal research findings, the DAP is the second most frequently used test in hospitals, clinics, and counseling services throughout the country (Sundberg, 1961). Swensen's (1957) review of the literature focused on reliability and the analysis of some research findings concerning specific body areas. His review mentions 10 studies dealing with anxiety and/or conflict indexes, and deals with five such indexes. Swensen concludes that research does not support Machover's hypotheses concerning placement, erasure, and shading as conflict indexes. Research concerning size, and type of line, Swensen concludes, has yielded conflicting evidence. The present authors reviewed 51 studies, that included 21 indexes of anxiety, which led to somewhat different conclusions.

Table I presents the research findings for the 21 indexes, compared with traditional clinical interpretation of anxiety. Table II presents a summary of findings for each index, indicating the number of instances a finding was in agreement with traditional clinical interpretation, was nonsignificant, or was significant in the opposite direction. These indexes included: shading (S), hair shading (HSH), erasure (E), reinforcement (R), emphasis line (EL), size increase & decrease (SZ), head size (HSZ), head: body ratio (H:BR), placement (P), heavy line (HL), line pressure (LPI), light line (LL), omission (O), detail loss (DL), distortion (D), head simplification (HSP), trunk simplification (TS), transparency (T), line discontinuity (LD), delineation line absence (DLA), and vertical imbalance (VI).

On the whole, research results uphold the validity of a number of the indexes. A total of 149 findings were in agreement with the traditional clinical interpretation of anxiety, while 73 findings were non-significant, and 30 findings were significant in the opposite direction (present more frequently in the nonstress drawings. See Table I). Omission, distortion, detail loss, and to a somewhat lesser extent, size increase and decrease, head simplification, trunk simplification, and line discontinuity have consistently yielded significant results in the expected di-

TABLE I—Summary of Research Findings Concerning 21 Anxiety Indexes on the DAP Compared with Traditional Clinical Interpretation

Anxiety Indexes	Disagreement with Traditional Clinical Interpretation: Opposite Direction	Agreement with Traditional Clinical Interpretation	Disagreement with Traditional Clinical Interpretation: Non-significant Findings
S	16^{a}, 17^{e}, 21, 22, 48^{e}	3, 13, 16^{b}, 35	7, 10, 11, 20, 24, 34, 39^{e}, 40, 42, 46
HSH	21, 23	34	35, 42, 50
E	17^{e}, 21, 22, 48^{e}	3, 26, 49	10, 11, 20, 24, 34, 40, 42
R	17^{e}, 20, 21, 22, 34, 48^{e}, 50	41^{e}	10, 24, 40
P	8, 9, 21, 49	3, 10, 11, 18, 20, 24, 28	22, 34, 40, 46
EL	6, 21		20
SZ	22^{c}, 48^{c,e}	3, 4^{d}, 11, 19, 20^{c}, 21, 24^{c}, 26^{c,e}, 27^{e}, 29^{c} 30^{d}, 33^{d}, 34^{c}, 35^{c,e}, 36^{d}, 41^{d}, 44^{c}, 47	10, 15, 22, 39, 40, 42, 49
HSZ		3, 17, 26, 28 35^{d,e}, 50	15^{d}, 18, 21, 22, 24, 34, 37, 39^{e}, 49
H:BR		5, 6, 18, 28, 27^{e}, 34	21, 24, 37, 42
LL		3, 13, 20, 21, 35^{e}, 36, 41	10, 22, 24, 34, 40
HL	20^{f}	3, 21, 36, 39, 41	40
LPI	20^{f}	3, 19, 20, 21, 41^{e}, 49	11
LD		19, 20, 21, 41^{e} 49	22, 40
DLA		20, 21, 50, 51^{e}	22
T		20, 22, 25, 48^{e} 49^{e}, 50	10, 19, 21, 38, 40, 42
O	2	1, 2, 10, 14, 16, 17, 20, 21, 22, 25, 27^{e}; 32^{e}, 33, 34, 35, 38, 42, 45, 46, 48^{e}, 49^{e}, 51^{e}	24
VI		3, 20, 21, 27^{e}	46
DL	43	2, 5, 6, 12, 21, 25, 32^{e}, 33, 41, 42, 51^{e}	
D		3, 6, 12, 14, 17, 20, 21, 25, 27^{e}, 31, 41, 42, 43, 46, 49^{e}, 50, 51^{e}	10, 24, 34
HSP		5, 12, 17, 21, 42, 50, 51^{e}	40, 49
TS		1, 3, 12, 17, 20, 21, 32^{e}, 51^{e}	19, 40, 42

1. Alexander 2. Anastasi & Foley 3. Berman et. al. 4. Brengelmann 5. Brill 6. Burton & Sjoberg 7. Craddick 8. Dennis 9. Dennis & Raskin 10. Eigenbrode 11. Eisen 12. Elkish 13. Exner 14. Fingert et. al. 15. Fisher & Fisher 16. Fox et. al. 17. Goldworth 18. Goodman & Kotkov

19. Gutman 20. Handler 21. Handler & Reyher 22. Holzberg & Wexler 23. Hoyt 24. Hoyt & Baron 25. Hozier 26. Koppitz 27. Koppitz et. al. 28. Kotkov & Goodman 29. Lembke 30. Liebert et. al. 31. Meyer et. al. 32. Modell 33. Modell & Potter 34. Mogar 35. Morganstern 36. Pfister 37. Prater 38. Rawn 39. Reznikoff & Nicholas 40. Royal 41. Silverstein & Klee 42. Singer 43. Springer 44. Traube 45. Utsugi & Ohtsuki 46. Vane & Eisen 47. Waehner 48. Wexler & Holzberg 49. Wigginhorn 50. Witkin et. al., 1954 51. Witkin et. al., 1962.

[a] girls.
[b] boys.
[c] smaller only.
[d] larger only.
[e] composite score.
[f] decrease only.

TABLE II—Summary of Number of Studies in Each of the Three Categories: 1. Agreement with Traditional Clinical Interpretation 2. Findings in the Opposite Direction, and 3. Nonsignificant Findings

Anxiety Index	Agreement	Opposite Findings	Nonsignificant Findings
Shading	4	5	10
Hair Shading	2	2	2
Erasure	3	4	7
Reinforcement	1	7	3
Emphasis Line	0	2	1
Size Increase & Decrease	18	2	7
Head Size	6	0	9
Head: Body Ratio	6	0	5
Placement	7	4	4
Heavy Line	5	1	1
Line Pressure Increase	6	1	1
Light Line	7	0	5
Omission	22	1	1
Detail Loss	11	1	0
Distortion	17	0	3
Head Simplification	7	0	2
Trunk Simplification	8	0	3
Transparency	6	0	6
Line Discontinuity	5	0	2
Delineation Line Absence	4	0	1
Vertical Imbalance	4	0	1

rection (increased omission, distortion, etc., indicates anxiety). Accordingly, they would seem to be rather good predictive indexes of anxiety. Evidence is somewhat less consistent for light line, vertical imbalance, and delineation line absence, as Tables I and II indicate.

In regard to shading, hair shading, erasure, and reinforcement, the number of studies in agreement with traditional clinical interpretation is balanced by an equal or greater number of findings in the opposite direction, and an equal or greater number of nonsignificant findings. While this is not quite the case for placement, more than half of the findings for this index did not agree with the traditional clinical interpretation. Some studies actually found significantly *less* shading, hair shading, erasure, reinforcement, placement in the upper left corner, and less emphasis line in situations where *more* was predicted.

While the data presented in Tables I and II suggest that these traditional measures may be poor indexes of anxiety, Handler & Reyher (1964) suggest an alternative explanation. These so-called "opposite" results may very well be explained by differences in the subject's characteristic mode of approach to stress situations – i. e., whether he copes with or avoids stress. Handler & Reyher (1964) observed that the anxiety-producing characteristics of the drawing task and/or the laboratory stress situation created a desire in most subjects to finish the figures with a minimum of effort and to leave the situation as quickly as possible (flight). This motivation would also seem to characterize the clinical testing situation. Since the figure drawing test itself is stressful (i.e., the diagnostic testing session) a flight reaction may be rather frequent, thereby producing a reduction of shading, reinforcement, erasure, etc. Thus, the *presence,* rather than absence, of reinforcement, erasure, and shading may at times indicate a coping with anxiety, and might be indicative of good ego strength. Handler & Reyher (1964) observed that these indexes could represent an adaptive response to the task in an appropriate attempt to make the figures as true to life as possible and to give them substance. They seemed to denote adaptiveness, flexibility, and an appropriate reaction to a reality situation. Hammer (1959), too, notes that some erasure, with subsequent improvement, is a sign of adaptiveness and flexibility. In a later study Handler (1964) found that shading, erasure, reinforcement, and emphasis line correlated significantly and negatively with GSR, thereby indicating that these indexes are probably more sensitive to external stress (albeit in the opposite direction) than to intrapsychic stress. A reported finding that erasure was directly related to intelligence (Mogar, 1962) suggests that erasure (and probably also shading, reinforcement and emphasis line) is a concomitant of general awareness of oneself as he relates to, and yet is separate from his environment. These results indicate the inherent danger and the fallacy of assigning but a single meaning to the presence of an index of anxiety. Thus, for example, as Handler & Reyher (1964) point out, the presence of shading, hair shading, erasure, and reinforcement, *or* their conspicuous absence may indicate either presence or absence of anxiety. Thus, the rather puzzling, conflicting findings reported in Table I for shading, hair shading, erasure, reinforcement, and emphasis line may mirror differential reactions to stress. In experiments where stress is particularly strong, or when subjects or patients are under severe anxiety, a withdrawal response might be expected. With subjects whose anxiety is milder, a coping defense (and thus presence of these indexes) might be expected. In addition, part of the reason for some of the nonsignificant findings reported in Table I may be the differential inter-subject response to stress discussed above. Thus, if some subjects or patients cope with anxiety by shading, whereas others withdraw and therefore do not shade, the result is very likely to be a neutralizing or cancellation effect, which shows up as a statistically nonsignificant finding.

One of the sources of conflicting experimental evidence for shading, hair shading, erasure, etc. is the inability to differentiate between internal (intrapsychic) and external sources of anxiety. For example, Handler & Reyher (1964) suggest that while heavy and light line both indicate anxiety, the former seems to reflect an external source, while the latter seems to represent an internal source of stress. Similar results were obtained for heavy line and heavy pressure, light line, and light pressure in a second study by Handler (1964). He notes that the presence of anxiety indexes in a drawing cannot always be used to measure intrapsychic stress. Instead, the presence of shading, erasure, emphasis line, reinforcement, heavy line, heavy pressure (and to a lesser extent, delineation line absence and body simplification, which seem to reflect *both* intrapsychic and external stress) may be a reaction to an external source of stress. These indexes seem more sensitive to external stress than to intrapsychic stress, and thus seem less reliable indexes of symbolic conflict than the other indexes.

To return once more to Tables I, and II, both small *and* large drawings seem to indicate anxiety. Size increase and decrease seems to be a fairly reliable index since 18 studies indicated the validity of this index in reflecting anxiety, while only seven studies yielded nonsignificant results. Only two studies found results in the opposite direction. While head size was a valid index in six studies, nine other studies yielded nonsignificant findings. six studies found head: body ratio to be a valid index, while five studies found this index to be nonsignificant. Of the three indexes (size, head size, and head: body ratio), the size of the entire drawing seems to be the best index.

Only seven out of 15 studies indicated that placement is a valid index of anxiety, while four studies found results in the opposite direction. An additional four studies found nonsignificant results. An explanation for these diverse results is offered by the work of Dennis (1958), and of Dennis & Raskin (1960). They found that the location of the drawing on the page is influenced by handwriting habits, and more specifically, by the starting position in handwriting. Thus, although the location of drawings *may* be related to personality factors, handwriting habits may partially obscure these factors. For example, based on Dennis and Raskin's results, a drawing may be located in the upper left hand quadrant of the page because a patient is anxious, or because it is his habit to begin there, just as he begins to write in that same area. The four nonsignificant findings reported for placement in Table I may very well reflect a cancellation effect between those nonanxious subjects who placed their figures in the upper left hand corner, and anxious subjects who did the same. Handler & Reyher's (1964) findings offer another reason for the nonsignificant findings. They had subjects draw a man, woman, and an automobile under stress and nonstress conditions. They found that 26 out of 57 subjects (46%) placed their male figure in the upper left hand corner under nonstress conditions, while only 12 subjects (21%) placed their figures in the upper left hand corner in the stress condition. These findings indicate that the *nonstress* rather than the stress situation may be associated with placement in the upper left hand corner. The stress condition caused both movement downward from the upper left *toward* the center of the page for some (42%), and movement upward *toward* the upper left hand quadrant for other subjects (12%). It appears then that any change in placement, regardless of direction, seems to indicate stress. However, movement upward and toward the left was more prominent. To determine whether these changes were due merely to the unreliability of the index, the test-retest reliability was computed for a new sample of drawings. The obtained 78 percent agreement indicated that the index is a reliable one. For some subjects (46%), placement of the figures was not affected by the stress situation, indicating that for some subjects placement is not an index of anxiety.

It is possible to argue that *any* drawing of the figures activates intrapsychic anxiety and that this would account for Handler & Reyher's findings of frequent placement in the upper left hand corner. However, Handler & Reyher's data helps to clarify this issue in view of the fact that they had their subjects draw a relatively neutral figure of equal difficulty (an automobile). Thirty-one out of 57 (54%) subjects placed the nonstress automobile drawing in the upper part of the page and toward the left, which, of course, supports the interpretation that this is due to writing habit as indicated by Dennis and Dennis & Raskin.

It would seem important to determine in which subjects location is determined merely by habit transfer, and in which subjects does it reflect anxiety. In addition, it seems important to determine the reasons for these differences. For example, it is possible that in some subjects and/or patients the anxiety-producing properties of the testing session and of the drawing task, along with poor ego-controls would interfere with habit transfer and produce a drawing in a quadrant other than the one in which the subject is used to writing. Such a formulation would account for some subjects placing their drawings directly in the middle of the page. Similarly, Mogar found a positive relationship between overestimation of head size relative to figure (head: body ratio) and two external criteria of anxiety (Taylor Manifest Anxiety Scale and Rorschach Content Scale). He suggests that "anxiety is a condition which lessens the differentiation between self and the environment" (Mogar, 1962, p. 6). Mogar suggests that this finding is consistent with the sensory-tonic and perceptual theory of Werner and Wapner (1952), which suggests that perceptions of one's own body parts tend to be overestimated under conditions which decrease differentiation of self and world. In accordance with this formulation, Wapner, Werner, and Comalli (1958) found that perceived head size increases under the influence of LSD.

Heavy line, and line pressure increase seem to be better predictors of anxiety than does light line. For heavy line only one study reported nonsignificant findings while five studies reported agreement with traditional clinical interpretation. Six of the eight studies reported for line pressure increase were in agreement with traditional clinical interpretation. For light line seven studies were significant while five were nonsignificant. However, there were only two findings in the opposite direction for the three indexes. Handler & Reyher's, (1964) suggestion that light line indicates intrapsychic stress while heavy line reflects external stress may perhaps account for these findings. That is, if the subjects involved in the experiments which yielded nonsignificant findings felt anxious due to the stress of the testing session, they would tend to draw with heavier lines rather than lighter lines. At this point it is not possible to validate such a formulation, for of the five studies which yielded nonsignificant findings for light line, only one (Royal, 1949) also used heavy line as an index. While Royal's study is nonsignificant for heavy line as well, and therefore speaks against the above hypothesis, this evidence is far too slim to make any definitive interpretations.

Omission, detail loss, and distortion seem to be excellent indexes of anxiety, based on the great number of studies which show that these indexes reflect anxiety. The unambiguous results reported for these indexes support the avoidance hypothesis, since these indexes reflect a diminution in effort, articulation and detail. Such findings point up another important factor – the intensity level of the stress. Thus, highly stressful diagnostic or experimental testing sessions would probably encourage an avoidant reaction, while less stressful testing sessions may very well encourage a coping defense. This formulation might account for much of the inconsistency in DAP research results, and suggests that additional research is needed in the area of the assessment of the degree of the anxiety-producing properties of the diagnostician and of the testing situation. Another problem in DAP research concerns the relative value of each of the indexes and their relationship. Are we to assume that there is a one to one relationship between indexes, – that one index is equally as good as another in reflecting anxiety? Does the anxiety indicated by shading have the same qualitative and quantitative meaning as that indicated by transparency? For example, with Handler & Reyher's (1964) subjects there was no significant change in the frequency of transparency in a stress situation, compared with a nonstress testing session. However, Table I shows six studies which indicate that transparency is a valid index of anxiety. In this case the explanation may be that Handler & Reyher (1964) used "normal" college students who would not be expected to demonstrate severe personality disturbance. Transparency has been hypothesized to indicate rather severe personality disturbance, which is consistent with our clinical experience. Additional research is needed in scaling or weighting indexes of anxiety, from those least indicating anxiety to those most sensitive in reflecting anxiety. Thus, for example, in Handler & Reyher's (1964) study, line pressure, erasure, and loss of detail differentiated on all three drawings. These indexes should, it seems, therefore be among the most sensitive indexes of anxiety, — at least for "normal" subjects. The review of the literature does not bear out such a conclusion for line pressure increase and erasure, but such a conclusion seems warranted for detail loss. Handler (1964) failed in an attempt to predict the rank order of the 21 indexes, from those which best reflected anxiety to those indexes least effective in reflecting anxiety.

Additional research is also needed in establishing some type of base rate or a set of norms and expectancies concerning the occurrence of anxiety indexes in projective drawings. Thus, for example, Handler (1964), using "normal" college students, found that the woman drawing yielded the highest level of anxiety compared with the man and the automobile drawings. Establishing a base line for clinical interpretation in a diagnostic setting would seem important here, since the presence of anxiety indexes in a woman drawing drawn by a male might be a natural state of affairs, — at least for adolescents.

There is also a suggestion that different personality types demonstrate different patterns of anxiety indexes in their drawings (Handler & Reyher, 1964; Witkin, Dyk, Goodenough, Fatterson & Karp, 1962). Research along this line would greatly expand the kinds of interpretations clinicians could make from figure drawings.

A few final words concerning various research approaches and the problems inherent in these approaches seem in order. A number of experimental approaches employed in DAP research seem to "wash out" or minimize rather than maximize differences between experimental and control groups. It is difficult to determine whether nonsignificant findings can be accepted at face value, or whether they are due to this minimizing effect. Similarly, another possible reason for the nonsignificant results obtained in a number of studies lies in the choice of criteria used to establish the presence or absence of anxiety. Many studies employed imprecise and unreliable diagnostic categories in setting up experimental and control groups. Other studies relied on pencil and paper tests of anxiety, often in conjunction with nosalogical classification. These pencil and paper anxiety tests, in addition to their other weaknesses, seem designed to tap external, conscious stress rather than the more symbolic intrapsychic stress. The use of these scales may very well be inappropriate if one is interested in investigating intrapsychic rather than external stress. Under such conditions low, nonsignificant correlations should be expected between pencil and paper tests of anxiety and DAP anxiety indexes, unless these indexes are sensitive to external stress.

Relatively few studies have employed some type of actual stress situation, either a natural, "real life" stress situation, or one which is laboratory-induced. This approach, used in an experiment with the subject as his own control, and employing a counterbalanced design, seems to be a sound research procedure. It seems to be an improvement in technique in that it removes the inter-subject drawing differences which are a contaminating factor in DAP research. Thus, plaguing questions concerning artistic ability no longer seem relevant, since each subject is compared only with his *own* past performance. However, there are problems with such an approach. For example, a laboratory stress situation will most assuredly be somewhat artificial, and therefore, findings cannot always be generalized to a patient population. It is also difficult to find a stress situation which will activate intrapsychic stress to a greater degree than external stress. More serious, however, is that it is sometimes difficult to determine whether the subject or patient is truly anxious, and if so, to what degree he is anxious; what is anxiety-provoking for one person may not be so for someone else. However, the authors are optimistic that additional well designed research which offers the clinician some standards and controls as a base rate from which to analyze figure drawings will do much to make the test even more useful than it is at present.

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Security Feelings and Affective Tone of Early Recollections: A Re-evaluation

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Summary: The aim of this study was to evaluate the relationship between feelings of psychological security and affective tone of early recollections (ERs). Previously, using a dichotomous measure of affective tone of ERs, the relationship was reported to be linear, therefore suggesting ER tone as a good projective technique. In the present study, the earlier findings were first replicated. Then the same data was reanalyzed using the more sensitive continuous measure of affective tone and analysis of variance to compare the ER tone of High, Middle, and Low Secure *S*s. On the first ER there was a curvilinear relationship between affective tone and security with Middle Secure *S*s offering the more pleasant ERs. There were no significant differences among the groups on later ERs. When the affective tone of ERs associated to stimuli by these groups were compared, significant differences were found on "social" stimuli, again with the Middle Secure *S*s offering more pleasant ERs. A defensive selective recall hypothesis was suggested to explain the results.

Personal reports of experiences have always played an important role in personality assessment. In addition to their value in providing historical information, early recollections (ERs) have been used as projective tests (Mosak, 1958). In this regard Purcell (1952) reported that ". . . for childhood and adult memories alike, secure subjects judge significantly more memories to be pleasant than do insecure subjects. Conversely, insecure subjects judge significantly more memories to be unpleasant than do secure subjects . . . Thus the personality variable, psychological security, is seen to be significantly related to judgments of the affective tone of memories" (Purcell, 1952, p. 436). Purcell further concluded, "As Adler suspected, early memories proved no more difficult of interpretation than later memories. However, neither did they appear to possess any special significance in revealing an individual's fundamental security attitudes. When the earliest memory was compared with a memory selected at random, the tenth, no substantial differences were observed. Thus the hypothesis that the earliest memory is most illuminating was not supported" (Purcell, 1952, p. 438).

Purcell's conclusions were based on *correlations* of the *S*s' security feelings as measured by Maslow's Security-Insecurity Scale (Maslow, 1952) and the number of ERs which the *S*s judged to be either "pleasant" or "unpleasant." While the method of having *S*s make a dichotomous choice concerning the pleasantness of their ERs may be useful for gaining insight into general relationships, there may be important variations in the affective tone of ERs within either of the larger classifications of pleasant and unpleasant. Therefore, the aim of this research was to determine whether a continuous rather than a dichotomous measure of affective tone and a mode of analysis other than correlations would be more revealing of the relationships between security feelings and the affective tone of ERs. Further, using the continuous measure of affective tone, an attempt was made to explore the value of stimuli-associated ERs as projective measures.

METHOD

The *S*s in this study were 140 women students in introductory psychology classes. The data were collected through questionnaires on which *S*s first recorded three freely associated ERs and then four ERs which they associated to standard stimuli: 1. doctor or nurse, 2. school, 3. sickness, and 4. teaching or being taught. Stimuli two and four differed from stimuli one and three in possible vocational connotations, but the former pair were also more frequently described as being related to "social situations" when they were submitted to six judges for ratings. After giving each ER, the *S* scored it for affective tone. For this measure the form asked, "At the time, how would you have described the experience?" and *S* responded by placing an "X" on a nine-inch graphic scale. The scale was made up of two equal parts labeled "pleasant" and "unpleasant." There were descriptive points of "extremely," "very," and "somewhat" within each of these parts. The *Ss'* judgments on this scale were converted into two scores. The first was a dichotomous score (similar to that of Purcell) of "pleasant" or "unpleasant" depending on which half of the continuum the judgment fell. The second was a continuous score which was obtained by applying a scoring stencil with nine parts to the scale and *Ss'* scores were determined by the segment in which their "X's" were found. A score of "1" corresponded to the most pleasant range, while a score of "9" corresponded to the least pleasant range. Eleanor Hedvig (1960) has reported that self-ratings of ER tone correlate between .92 and .77 with ratings by judges.

The security feelings of the *Ss* were measured by the first 25 items of Maslow's S-I Scale (1952). These 25 items have been shown to correlate .92 with the full scale and were the items used in previous studies relating psychological security to the affective tone of ERs.

Since the type of early experiences the *Ss* actually had and their security feelings might be a function of their social class backgrounds, two measures were used to determine the social class of the *Ss*: level of fathers' education and fathers' occupation. "Fathers' occupation" was transformed into a numerical score using the table devised by Warner (1949).

For a second analysis, *Ss* were divided into three groups on the basis of their S-I Scale scores: Middle Secure *Ss* ($N=11$) who fell at the mean of the S-I Scale distribution, High Secure *Ss* ($N=13$) and Low Secure *Ss* ($N=12$), the latter groups of *Ss* falling at plus or minus one standard deviation from the mean of the S-I Scale score distribution.

RESULTS AND DISCUSSION

Replication and comparability of data to previous work: The first analysis was done in order to determine whether the current data were comparable to those of Purcell. The dichotomous scores were used and the number of ERs which a *S* judged as "pleasant" were correlated with his S-I Scale score. The correlation obtained was .12, $df = 138$, which was not statistically significant. However, the magnitude of this correlation was depressed because of the restricted possible range, 0 to 7, and SD, 1.3, of one of the variables (number of ERs scored as "pleasant"). The range of the second variable (S-I Scale score) was 0 to 18 and the SD was 4.2. Since, however, the data were found to be both linear in regression ($F = .94$, $df = 5{,}133$) and homosecedastic ($x^2 = 11.48$, $df = 6$), it was possible to correct for the restriction of the one variable through the use of McNemar's formula 46 (McNemar, 1955, p. 149). The corrected correlation was .37, $df = 138$, which was significant beyond the .01 level when a two-tailed test of significance was used. Purcell's correlation between the number of ERs scored as "pleasant" and the *Ss'* S-I Scale score was .25, $df = 126$, a correlation which when tested with a z' transformation (Edwards, 1960, p. 82-83) did not differ significantly from the one reported in the present study ($z = .99$). It should be pointed out that Purcell did not have to make a correction on his correlation because he collected 25 ERs from his *Ss*, thereby making the range and SD of this variable comparable to that of the S-I Scale distribution. A chi-square test was performed to determine if, with the dichotomous scores, there was a difference between the affective tone scores of the first and last freely associated ERs, resulting, as in Purcell's report, in a non-significant difference ($x^2 = .002$, $df = 1$). Therefore, it was assumed that the data used in the present study and in Purcell's were comparable and that if new or different relationships were found in the data, they would be a function of the methods of measurement and analysis used.

Results using continuous scores and analysis of variance: For this analysis the High, Middle and Low Secure groups were used. The security groups were first compared on the measures of social class background (educational level of fathers and fathers' occupation). No significant differences were found among the groups ($F = .78$ and $.20$ respectively, $df = 2, 33$).

When the continuous scores of affective tone on the first ER were compared for all three security groups, the group means were found to differ beyond the .01 level ($F = 9.1$, $df = 2, 33$). A Kramer multiple range test for groups of unequal size (Kramer, 1956) indicated that the mean affective tone scores of the High and Low Secure groups did not differ significantly from each other. The mean affective tone score of the Middle Secure group was, however, significantly (.01) more "pleasant" than those of the other groups. On the second and third ERs there were no significant differences among the mean affective tone scores of the groups ($F = .52$ and $.09$ respectively, $df = 2, 33$). Further, there were no significant differences in mean affective tone scores between the first, second, and third ERs given by either the High ($F = .04$, $df = 2, 36$) or Low ($F = 1.6$, $df = 2, 33$) Secure groups. The mean affective tone score of the Middle Secure group on the first ER was significantly more "pleasant" (.01) than the scores of this group on the second or third ERs ($F = 10.1$, $df = 2, 30$). The group means for the three ERs are presented in Table I.

TABLE I—Mean Affective Tone Scores for High, Medium, and Low Security Groups

	I	II	III
High Secure	4.9	4.8	4.6
Middle Secure	1.9	4.1	4.1
Low Secure	6.6	5.3	4.4

Lower values indicate more "pleasant" affect.

The use of the continuous scores changes and adds a completely new dimension to the previously reported relationship between affective tone and security feelings. First of all, rather than there being no difference between the first and later ERs, as Adler (1927) hypothesized and Purcell's data seemed to support, the continuous scores do show a difference in the degree of positive affect ascribed to the first ER by Middle Secure Ss. Second, the linear relationship between security feelings and affective tone which was found earlier has been shown in fact, on the first ER, to be curvilinear.

When the affective tones of the ERs *associated to the stimuli* were compared, the means of the three groups were not significantly different on the ERs associated to the first and third stimuli ($F = .28$ and $.53$ respectively, $df = 2, 33$). On the ERs associated to the second stimulus, however, the means differed beyond the .01 level ($F = 8.39$, $df = 2, 33$). The mean affective tone of the ERs associated to the fourth stimulus differed at the .20 level ($F = 1.79$, $df = 2, 33$). On the second and fourth ERs the Middle Secure group offered the most pleasantly toned ERs. The patterning of affective tone scores across the various stimuli takes on some meaning when it is recalled that the stimuli for ERs two and four were ranked by judges as more "social" in nature than ERs one and three. That is, in response to social stimuli, Middle Secure Ss offer significantly more pleasant ERs than do other Ss.

The results of the present study can probably best be explained by defensive selective recall on the part of the Middle Secure Ss. That is, Middle Secure Ss defend against their social anxiety by recalling extremely pleasant things, especially in *social* situations. High Secure Ss do not need to defend whereas Low Secure Ss can not defend or have given up defending. The reversal of the High and Middle Secure groups in terms of affective tone as a result of selective recall, is supported indirectly by similar data from other lines of research. For example, Thelma Alper (1948), working on the Zeigarnik effect, found that Ss characterized as high in ego-strength (high on traits like self-esteem and no doubt similar to the High Secure Ss in the present study) preponderantly recalled incompleted tasks while the reverse was true of Ss who were lower in ego-strength, a group more similar to the Middle Secure Ss. That is, Ss lower in ego-strength or security recalled tasks associated with more positive affect and vice versa. Further, in the need-affiliation literature (Atkinson, Heynes and Veroff, 1954; Shipley and Veroff, 1952), it is a consistent finding that stories of "positive affective relationships with other persons occurred more frequently in the imaginative stories of the group in which *n Affiliation* had been aroused" (Atkinson, *et al.*, 1954, p. 409). In the present study, the Middle Secure Ss would correspond most closely with the *n Affiliation* aroused group. That is, they are less secure than the High Secure Ss and therefore more aroused or sensitive to the need.

Using a continuous measure of affective tone, we see that the first ER of some Ss takes on a unique defensive quality which is not characteristic of later ERs. Actually, the *first* response of the Middle Secure Ss seems to demonstrate what Freud (1914) originally felt was characteristic of all ERs, namely, that they were defensive "screens" which the patient used to conceal his real anxiety or style of life. A recent paper (Holmes and Watson, 1965) reported that rather than being a screen, the manifest content of ERs and their affective tone could be related directly to the Ss' style of life. Interestingly enough, however, this relationship was found *only* on the second and third of three freely associated ERs, the first one being a non-significantly related screen or warm-up effect.

SUMMARY

In summary then, ERs as a projective technique are not so clear and accurate a measure of personality factors as once was thought. From the present data it can be concluded that a) The first freely associated ER was, unlike later ones, defensively distorted in terms of the affective tone, b) The distortion was a curvilinear function of the Ss' security feelings, and c) This distortion was also seen in ERs given in response to social stimuli.

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Human Figure Drawings As Predictors of Admission to a Psychiatric Hospital

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Summary: Blind predictions were made as to admission or non-admission as an over-all rating and as to degree of pathology in eight areas of personality, based only on human figure drawings. These drawings were obtained from a sample of 105 individuals presenting for psychiatric hospital admission. The judgments were all in the predicted direction and significant for admission-non-admission, impulsivity, and severity of pathology. Cues utilized in the successful judgments were categorized as structural or content and scaled by degree of pathology. Structural cues predominated. We conclude that HFD's are a useful screening device for clinical judgment of degree of psychopathology. The basis of such judgments can be specified in terms of structural deviations rather than from symbolic content.

While Machover's (1949) hypotheses concerning personality attributes of individuals based on their drawings of the human figure have seldom been supported by empirical research (Swenson, 1957), many clinicians still find HFD's useful in clinical assessment. Swenson (1957) has suggested that the HFD might be useful as a "rough screening device or as an indicator of 'level of adjustment'." On a gross diagnostic level several studies report finding differences between normal, neurotic, psychotic and brain damaged groups on the HFD (Goldworth, 1950; Holzberg & Wexler, 1950; Wexler & Holzberg, 1952). Albee and Hamlin (1949, 1950) found a significant relationship between clinical ratings of emotional adjustment from drawings and independent ratings based on the patient's case history. Thus, it would appear that global clinical judgments based on drawings show more promise of predictive capacity than do Machover's hypotheses about specific dynamics being related to specific elements of drawings.

It has been the authors' clinical experience that HFD's do contribute to a clinical test assessment of patients. For this reason, and the fact that this test can be administered in a very short time by non-technical personnel and is easily understood and usually complied with by patients, it was included in efforts to develop a brief screening test battery to be used in assessment of individuals presenting for admission to a psychiatric hospital. We hypothesized that clinical judgments of HFD by experienced clinical psychologists would accurately predict a patient's admission or non-admission to the hospital. Our assumption was that degree of pathology would be the central factor in whether or not a patient was admitted to the hospital. Predictions from the drawings were made in eight areas against a criterion of hospital admission. They were based essentially on the degree of pathology rated in each area. Hence we predicted that the more severe the disturbance rated in each area, the more likely the admission.

Procedure

All individuals who presented for admission to a small university psychiatric hospital were administered a brief screening test battery which included the human figure drawings. The instructions were basically those given by Machover (1949). The testing was done after the individual had been evaluated by a psychiatric resident for admission, but prior to the individual being informed whether or not he would be admitted to the hospital.

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The drawings were obtained from 104 individuals who presented for admission and were testable. Forty-four were not admitted while 60 were. This sample is more fully described in our study of clinical prediction and hospital admission (Jones, Kahn, & Langsley, 1965).

The ratings of the human figure drawings were carried out by the authors as experienced clinical psychologists on the staff of the university hospital. Except for the categories Diagnosis, and Admit and Treat, the ratings were of degree of severity of pathology in nine areas. They were made on three to five point continuous scales. The drawings were coded so that the raters did not know whether the individual who drew the figures had been admitted or not admitted, or any other information except sex and age.

Reliability of the ratings was determined by having both judges rate the same five randomly selected sets of drawings for the first seven areas in Table I, in which the categories were continuous. The raters were in exact agreement on 50% of the total of 35 ratings, were within one scale point on 48%, and within two scale points on 2%. For the two non-continuous areas, the raters were in exact agreement on diagnosis for 3 of the 5 patients and on prediction of admission for 4 of the 5 patients. It was thus felt that the reliability of clinical judgments of the drawings was satisfactory. The total sample of drawings was randomly assigned so that each judge rated approximately half the sample but never cases about which he might have some knowledge. The predictions in each area rated were tested by chi square between the admit, non-admit criterion and the scaled ratings of each category in Table I.

Results and Discussion

Table I also presents the chi square values and probability level of each of the nine categories rated. It will be noted that with the exception of intelligence on which there was no prediction of admission or non-admission, in each of the categories the ratings from human figure drawings were in the predicted direction. These predictions were highly significant with regard to the categories of admitting the patient to the hospital, severity of illness, and degree of impulsivity. These obviously are not independent variables; poor impulse control and severity of illness are undoubtedly related and, of course, a rating of admission to hospital was assumed to be based at least in part on judgments of severity of illness. In the other categories rated, judgments of general diagnosis from figure drawings closely approached significance as did judgments of sexual and ego identity. Judgments of severity of depression and ability to communicate feelings, while in the correct direction, had relatively poor predictive power.

TABLE I—Chi Square Value and Probability Level of Prediction of Admission, Non-Admission for Each Rated Category From Human Figure Drawings

Areas Rated	X^2	P
Severity of Illness	10.261	.04
Poor ego identity	5.719	.15
Poor sexual identity	7.634	.11
Impulsive	13.055	.001
Severity of depression	4.707	.35
Poor communication of feeling	4.758	.35
Estimate of intelligence	2.990	.45
Diagnosis	7.858	.09
Admit and treat	29.703	.0001

These data would appear to support our hypothesis that experienced clinicians can make meaningful predictions about gross pathological indicators from human figure drawings. They support the value of the HFD procedure as a rapid screening test.

However, to demonstrate that experienced clinicians can make valid predictions from global judgments of drawings is interesting but of limited value unless the basis of such clinical predictions can be specified and communicated.

Consequently, as a second phase of this study, we made an effort to identify and order the cues which went into our clinical predictions. Five sets of drawings were randomly selected from the total sample, and each of the judges independently specified the cues he had used in arriving at his judgment of these drawings. These cues were then compared and categorized.

These cues are a post-hoc reconstruction done in an effort to delineate the basis of the success of the judges' clinical predictions. Obviously they require cross-validation on a new sample. They are presented here because they turned out to have compelling theoretical consistency with Rapaport's (1946) and Holt and Havel's (1960) formulations of basic elements of Rorschach responses. Further, it seemed to us that it is crucial that the basis of successful clinical judgment be specified in order that the findings may be used by others.

Our preliminary conceptualization on the basis of these successful predictions is that the cues judges use fall into two general classes: (1) formal or structural aspects of the drawing; and (2) content.

By formal cues we refer to such characteristics as accuracy of form, proportion, logical consistency, and organizational properties paralleling Holt's (1960) concept of formal Rorschach characteristics, and Rapaport's (1946) distinctions between structure and association for the Rorschach. By content, in contrast, we refer to such factors as style of clothing, indications of sex, or facial expression.

For the type of prediction that was made here, admission or non-admission to a psychiatric hospital, the formal cues clearly predominated in our categorization of the bases of the predictions. This undoubtedly has to do with the assumption that admission to a psychiatric hospital basically had to do with severity of psychopathology. We hypothesized that persons admitted most likely would be those whose pathology was gross, whose personality was severely disorganized, with poor reality testing, poor judgment, and inappropriate or failing defenses. Thus, drawings with primitive, regressive form and poor organization might be expected from the more severely disturbed people presenting for admission.

That the content of the drawings contributed little to these predictions seems understandable in that we conceptualized content much as Holt (1960) has in his Rorschach primary process method. Content represents drive manifestations and domination, but the structure through which content is expressed is what indicates how adaptively and effectively drives are handled. Thus, in predicting admission to a hospital the structural deviations were the most telling.

Machover (1949), it would appear, has tended to emphasize the prominence and quality of individual content elements in order to make dynamic interpretations. We would speculate that the frequent failure to confirm her hypotheses rests in both the lack of consideration of the structural framework in which content is expressed and in the uniqueness of meaning that various content has for a given individual.

Our cues for predicting admission or non-admission are listed in Table II. These are categorized in four areas which are undoubtedly interdependent, and they correspond to those rating areas which demonstrated the strongest statistical significance for the predictions we made. The severity of illness and diagnostic ratings are clearly related. The cues in this category are those of developmentally regressive, primitive, disorganized, and distorted formal qualities of the drawing. The ratings in the category "Independence as a Person" concern differentiation from primitive symbiotic relationships and some reasonable independence from the environment. At its pathological extreme this represents, again, a very regressive and primitive dimension. The impulse-inhibition dimension has to do with drive control, either pathological overcontrol or pathological under-control. The only category of cues which involved much consideration of content was that of sexual identity. While this category provided some correct predictions, it may be because it is theoretically linked to the concept of independence as a person. In our conceptual framework, an individual with little differentiation as an individual could hardly have much in the way of firm sexual identity.

TABLE II—Cues for Assessment of Human Figure Drawings

- I. Severity of Illness—
  Diagnostic Considerations
  - A. Regression in form to earlier developmental levels
    - 1. Crude enclosure unrecognizable but called a person by patient.
    - 2. Presence and proper attachment of major body parts (head, trunk, arms, legs).
    - 3. Presence and proper placement of features (eyes, nose, mouth, hair).
    - 4. Presence and appropriateness of clothing.
    - 5. Proper proportions.
    - 6. General organization of drawing—inconsistencies and integration.
    - 7. Placement on sheet (center, corners, run it off the page).
- II. Independence as a Person
  - A. Firmness of outer boundary.
  - B. Stance.
  - C. Uniqueness vs. stylized or stereotyped.
- III. Sexual Identity
  - A. Reversal of sex on first drawing.
  - B. Effeminizing or masculinizing inappropriate sex.
  - C. Little differentiation of sexes.
- IV. Impulsive-Inhibited
  - A. Rapid lines, unreflective, undetailed drawing.
  - B. Large, expansive.
  - C. Small, constricted figure.
  - D. Much careful and tiny detail.

While future empirical tests of these postulated cues will undoubtedly call for revision and extension, we present them as a preliminary guide for clinical judgments.

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Diagnosis of Schizophrenia by Rorschach Patterns[1]

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Summary: In the belief that the diagnostic validity of Rorschach methods would gain from formalizing the judgmental processes of clinicians, 14 score patterns were constructed from eight Rorschach variables, each pattern designed to characterize patients in one of three broad diagnostic categories, Schizophrenic, Borderline Psychotic, or "Other." A random sample of 196 patients of a VA mental hygiene clinic was drawn from clinic files. The "pattern diagnoses" obtained by applying the pattern system to their Rorschach scores were found significantly related to diagnoses formulated by the examining psychologists and by the clinic intake staff. More patients diagnosed schizophrenic by the pattern method engaged in autistic behavior than patients with other pattern diagnoses. The diagnostic efficiency of the pattern method, measured in terms of ability to reach a definite diagnosis, proportion of correct diagnoses, and proportion of false positive errors, did not differ significantly from the diagnostic efficiency of the psychological examiners, and differed significantly from the psychiatrists' diagnostic efficiency only in producing more "indeterminate" diagnoses. The diagnostic validity of the patterns was considered to be established, but their usefulness as a clinical tool depends heavily on population base rates and the relative costs of false positive and false negative diagnostic errors.

The study was designed to investigate how well eight Rorschach summary scores, combined into a system of score patterns, produce diagnoses that agree with two kinds of criterion diagnoses: (a) diagnoses by the psychologists who had access to the same Rorschach data, and (b) diagnoses arrived at by a regular clinic staff after a complete intake evaluation.

The use of the psychologists' diagnoses as criterion diagnoses requires some explanation. The present study may be viewed as an effort simultaneously to translate aspects of the process of clinical diagnosis into an actuarial form (namely, a system of score patterns), and also to demonstrate the validity of the actuarial technique so derived. The argument will be developed below that although score pattern procedures resemble the way in which clinical psychologists state they use Rorschach data (e.g., Klopfer, 1956; Phillips & Smith, 1953), while linear (i.e., nonpatterned) actuarial techniques do not, (a) in the majority of attempts to validate the usefulness of Rorschach scores these scores have been applied in ways that fail to resemble closely the stated use of scores by clinicians; and (b) the more clearly the actuarial use of scores has approximated the use of the scores by clinicians, that is, the more nearly the actuarial use of scores approaches the use of score patterns, the more consistently have investigators obtained stable validities. The relationship described in (b) of the foregoing sentence, for which documentation will be attempted later in this section, reinforces the scattered evidence that clinical diagnoses based on Rorschach protocols carry some degree of validity; and the relationship at the same time reinforces clinicians' contentions that they achieve validity by intuitively employing pattern techniques. The first step in the present research, therefore, was to choose a relatively direct method for developing specific actuarial procedures that approximate the common use of Rorschach data by clinicians. The method chosen was (a) to obtain verbal reports from clinicians concerning the kinds of Rorschach score patterns on which they might base a diagnosis; (b) to validate the pattern system so obtained against diagnoses made clinically by other psychologists, to ensure that the patterns obtained are not peculiar to the first group of psychologists; and (c) to validate the pattern system against diagnoses based on wider evidence than that provided by interpretations of the psychological test data.

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Even if it is granted that the procedure outlined above is a reasonable one for learning more about the way clinicians use Rorschach data, one may object that it would be more pertinent, in view of the less-than-perfect reliability and validity of clinical diagnosis, to construct patterns by deriving them from Rorschach theory and to validate them against patients' ultimate diagnoses. The objection is cogent, but it loses some of its plausibility on closer examination. It is virtually impossible to apply present-day Rorschach theory to diagnostic problems rigorously without buttressing it with the relatively loosely formulated professional lore of Rorschach psychodiagnostics. Thus, Rorschach "theory," at this early stage of its systematization, yields few derivations for direct diagnostic application that supersede the practice of experienced, well-trained clinical psychologists. The clinicians who cooperated in assembling the score patterns for the present research made the fullest use possible of their acquaintance with Rorschach theory and of their professional clinical experience, and therefore presumably formed judgments as well-guided by theory as is at the present time realistically possible.

One further objection is possible. Why, one may ask, not circumvent both clinician and theory, and investigate the empirical relationships between Rorschach scores and diagnoses? The objection is idealistic. One consistent characteristic of dynamic personality theories and of Rorschach theory is that variables are described as interacting (Klinger, 1960). Since the number of variables to consider is very large, it is easy to show that an empirical examination of the diagnostic utility of all interactions, or even of a large proportion of all possible interactions, would require upwards of 2^n subjects, where n is the number of variables under consideration. A *purely* empirical approach, therefore, is out of the question since, for instance, the small figure of 2^{20} is 1,048,576. Trimming the empirical approach to permit, for instance, 40 variables but no interactions higher than the third order still is little help, since the number of subjects must exceed 102,090. These figures are absolute minima. Reasonably powerful tests of significance must include more subjects; and then there is the matter of cross-validation. Clearly, empiricist purity leaves something to be desired. One can, of course, reduce the number of variables and the highest order of interaction still further, but the more drastic the reduction, the more nonempirical judgment enters into the process. In an extreme case in which the investigator has limited his number of variables to ten and his highest interactions to second order, his absolutely minimal sample size is upwards of only 175; but he will have had to make decisions of the same sort as the authors made in designing the present study, and his approach can then hardly be classified with relatively pure empiricism. Thus, the best strategy seems to be to start with patterns that have known validity and, by gradual modification, to converge on an optimal set of score patterns. This is the strategy of the present research, of which the investigation here reported is a beginning stage.

The paragraphs that follow present a brief examination of inadequacies in the literature on the diagnostic validity of the Rorschach and some support for the assertion made above that the more *closely* actuarial diagnostic procedures approach pattern techniques, the more stable are the validities obtained.

The use of score patterns for actuarial diagnosis is, of course, far from original with the present research. If one defines "patterns" as non-linear combinations of scores that take account of interactions among variables, the potential usefulness of pattern techniques has been argued extensively in the clinical and general psychological literature (Gaylord and Carroll, 1948; Horst, 1954; Lee, 1954; Meehl, 1950). MMPI coding schemes produce pattern codes, and one of the most impressive demonstrations of the diagnostic validity of the MMPI depends on an elaborate system of MMPI score patterns (Meehl & Dahlstrom, 1960).

In sharp contrast, Rorschach methodology provides no widely accepted system for reporting or using score patterns, with the exception of a number of widely used score ratios, and the great majority of attempts to validate the diagnostic power of Rorschach scores have avoided the pattern methods by adopting several kinds of conceptual and methodological simplifications. The first two kinds of simplification, which have also been the most common procedures, are labeled here the "single syndrome" and "single variable" methods.

Single syndrome studies assume that each diagnostic group is characterized by a single major syndrome of scores, rather than by several different score syndromes subsumed under the same diagnostic label. Single syndrome simplification is implicit whenever mean scores of major diagnostic groups are compared, since no provision is made for the possibility that the means of the different subgroups within a major diagnostic category may vary more widely than the means of the major diagnostic categories. The single syndrome approach is inconsistent with the clinically observed fact that there are many psychodynamic roads to, say schizophrenia, and that variations among schizophrenics on many variables are sufficient to attenuate any differences between the mean scores achieved by a group of schizophrenics and the mean scores for some other diagnostic group. Few investigators making single syndrome assumptions have produced impressive evidence for the diagnostic validity of Rorschach scores. One such investigator (Wirt, 1956) reported significant "pattern" differences between normal, neurotic, and schizophrenic groups. The differences he reported have in general not been consistently confirmed in other single syndrome studies (Armitage & Pearl, 1957; Knopf, 1956; Rieman, 1953). It should be added that his method of analysis differed from what is called a pattern approach in the present paper, since it took no account of interactions among variables.

Single variable simplification consists of comparing groups with regard to one variable at a time, rather than by combining scores. This, also, is inconsistent with prevailing clinical practice. Most clinicians would be reluctant to assign diagnostic significance to, say, a particular $F + \%$ until they had considered the patient's R, $F\%$, *Sum C*, etc. The clinician might let a low $F + \%$ be outweighed by "good" performance on other indices, thereby employing the scores in an additive though non-pattern fashion (as in the "sign-count" approach described below); or he might let the diagnostic significance of the $F + \%$ depend on the scores obtained with other indices. For instance, the same high $F + \%$ might be taken as an index of adequate ego functioning under one set of conditions, as excessive guardedness under another set, or as part of a depressive syndrome under yet other circumstances. To let the diagnostic significance of one score depend on the size of other scores is the essence of pattern analysis. Comparing groups on one variable at a time ignores such interactions among scores and therefore wastes much of the pattern information that the clinician considers crucial.

In view of the foregoing considerations, it is understandable that single syndrome and single variable studies have produced only negligible evidence for the diagnostic validity of the Rorschach. The results have led at least two authors of large-scale validity studies that employed single syndrome and single variable simplification to conclude that the scorable data of Rorschach protocols are of little value in individual diagnosis (Armitage & Pearl, 1957; Knopf, 1956).

Several investigators have succeeded to a limited degree in avoiding the single-syndrome and single-variable assumptions in what will be dubbed here "sign-count" studies.

Typically, a list of pathognomonic Rorschach responses is drawn up, and the investigator or clinician determines how many such responses occurred in each protocol. The number of occurrences of pathognomonic responses then forms an index of pathology. Alternatively, differential weights may be attached to the different kinds of responses, with higher weights assigned to the more pathognomonic ones. The total score then consists of a sum of weights associated with responses that occurred in the protocol. In either case, the psychologist obtains a single index of psychopathology for each patient. Since counting responses or summing weights is a simple additive process, interactions among response categories are obscured, as with the single-syndrome studies. Buhler's Basic Rorschach Score (1949) allows the emergence of limited interactions, but not to a prominent degree. In general, the sign-count methods permit a given score to be achieved by a variety of response patterns, as in any multi-item scale, and to that extent they improve on the efficiency of the simpler methods.

Early development of the sign-count approach by Buhler, Klopfer, and Piotrowski has been followed up in recent years by these and other investigators working with schizophrenics and other disturbed groups, with relatively stable success (Buhler, 1949; Johnson, 1953; Kataguchi, 1959; Kirkner, Wisham & Giedt, 1953; Klopfer, 1954; Piotrowski & Bricklin, 1958 and 1961; Watkins and Stauffacher, 1952).

Several authors have specifically concerned themselves with the existence of multiple, discrete personality patterns among schizophrenics. Perhaps the largest-scale effort of this kind in recent years has been by Beck (1954). However, since Beck characterized schizophrenics in terms of clinically judged personality attributes rather than score patterns, his results shed no light on the diagnostic validity of Rorschach summary scores *per se*.

Thiesen (1952) examined the test records of 60 schizophrenic patients, looking for patterns among 20 Rorschach variables. He retained those patterns that characterized no fewer than ten per cent of his schizophrenic sample but no more than two per cent of 157 normal subjects. However, several methodological defects jeopardized his success and the success of cross-validation attempts. His minimum criteria for recognizing patterns seem unnecessarily rigid, his choice of cutting points for dichotomizing or trichotomizing Rorschach variables is open to question, and he tested the statistical significance of his five acceptable patterns on the same data which had originally suggested the patterns, thereby invalidating his significance levels.

In the first of two cross-validation studies, Rubin and Lonstein (1953) compared the frequency of occurrence of Thiesen's patterns among their 42 schizophrenic subjects with the frequency of occurrence in Thiesen's original control group. Only seven of their 42 subjects were characterized by any of the patterns (16.7%, as compared to 48.3% of Thiesen's schizophrenics) and only one of the patterns discriminated significantly between their schizophrenics and Thiesen's controls. However, using a larger and, possibly, a more disturbed sample of 62 hospitalized schizophrenics and 157 normal controls, Taulbee and Sisson (1954) confirmed the diagnostic validity of three of Thiesen's five patterns. Since the three patterns described only 15 (24%) of Taulbee and Sisson's 62 schizophrenics, their clinical usefulness appears limited. Nevertheless, it is important to the present argument that despite some inevitable shrinkage in validity following Thiesen's purely empirical research, the discriminatory power of most of his patterns found confirmation.

The sign-count methods avoid single variable and single syndrome simplification, and Thiesen's patterns in addition, permit the emergence and diagnostic use of interactions among Rorschach variables. Both approaches have survived cross-validation better than single score and single syndrome methods. Thus, as the objective analysis of Rorschach scores approaches more closely the judgmental processes of clinical psychologists, the findings of Rorschach validation studies are more frequently positive and replicable.

The present research attempted to construct a more comprehensive system of score patterns as an actuarial approximation of key operations performed by diagnosticians on Rorschach data. The rationale and form of the pattern system was influenced by and somewhat resembles the pattern analysis of MMPI scores by Meehl and Dahlstrom (1960). The present patterns were applied to patients of an outpatient clinic and the resulting "pattern diagnoses" were compared with other diagnoses to answer the following questions:

1. Are the pattern diagnoses significantly related to the psychologists' clinical diagnoses?

2. Are the pattern diagnoses significantly related to the diagnoses ("clinic diagnoses") finally accepted by the clinic staff?

3. How does the diagnostic efficiency of the Rorschach patterns alone compare with the efficiency of diagnoses made by the examining psychologists and psychiatrists? Efficiency is measured by amount of agreement with clinic diagnoses.

METHOD

Variables

The eight Rorschach variables chosen for the study are R, $F + \%$, $F\%$, H, P, $Sum\ C$, $MD + \%$, and *Bizarreness*. The first six are well known in the Rorschach literature and are common to several different scoring systems. Most of the records used in the present research were scored by the Beck system. $MD + \%$ and *Bizarreness* were created for the present study.

$MD + \%$ is analogous to $F + \%$ but is based exclusively on mixed determinants and M. It supplements or replaces $F + \%$ when $F\%$ falls below 41. $F + \%$ and $MD + \%$ were used instead of simply an extended $F + \%$ in the belief that they have somewhat differing psychological significance.

The *Bizarreness* score is the number of responses that conform to the usual clinical notions of bizarreness; that is, such responses as confabulations, contaminations, overly lurid sexual descriptions, and content of the kind described by Rapaport (1946, p. 232) as "gory" deterioration color responses, except that in the present research such content was rated as bizarre whether or not the accompanying determinant was pure *C*. Also included in the Bizarreness score was responses scored pure *C*, pure *Y*, and other completely non-*F* determinants, except, of course, *M*[2]. Reliability of the Bizarreness score was measured by comparing the two authors' independent scorings of 51 cases. Records were divided into a low-scoring group with zero or one bizarre response and a high-scoring group with two or more bizarre responses. A Fisher exact test yielded a probability value for the contingency table of .008, with 40 individuals rated low and 11 high by one rater, and 43 low, 8 high, by the other rater. The most appropriate measure of association here appeared to be *pi* (Scott, 1955), which gave a value of .423. The two raters agreed on the ratings assigned to 82% of the cases.

It is evident that clinicians do not ordinarily restrict themselves in their use of the Rorschach to the eight scores studied here. In this initial effort, it was decided out of economic considerations to keep the number of variables to a minimum consistent with the theoretical requirements of patterning.

Pattern Diagnoses

A catalogue of mutually exclusive score patterns was compiled in consultation with a number of clinical psychologists[3] (Table I). These psychologists were a different group from the psychologists who tested and diagnosed the subjects used in this study, and they were employed at a different institution from the treatment center that provided the subjects. The requirements for including a pattern were that patients with the pattern would probably occur at least occasionally in large samples of patients, and that the consulting psychologists could predict a diagnosis for the pattern.

Although the process of assigning diagnostic predictions to score patterns necessarily involved some arbitrary decisions, based in some instances on judgments that were hard to justify rigorously, the psychologists who assisted in the construction of the pattern system drew widely on commonly accepted principles of Rorschach interpretation. A full discussion of the considerations that entered into the construction of each pattern would entail a level of detail and a length beyond the scope of the present paper. It may be of interest, however, to illustrate the process with a few of the theoretical considerations employed. It is generally accepted, for instance, that constriction of response (low *R*) suggests extensive defensiveness by the patient (Phillips & Smith, 1953, p. 29), and that when severe constriction is accompanied by relatively poor reality orientation (as indicated by a low *F* + %) the likelihood of a schizophrenic process is considerable. As productivity becomes greater, the quality of the *F* + % must be lower to suggest a schizophrenic process with the same level of confidence. Hence, as the *R* range of the patterns becomes higher, the maximum *F* + % for diagnosing schizophrenics becomes lower. Furthermore, since the *F* + % is useful only when there are enough *F* responses to permit a reliable *F* + % index, patterns that make much use of the *F* + % also require an *F*% of more than 40. Since a failure to respond with human content or with popular responses is widely considered pathognomonic of severe withdrawal (Klopfer, 1956, p. 503; Phillips & Smith, 1953, p. 137-138), Pattern 3 carries a schizophrenic prediction; and this is done regardless of the value of *F* + %, since schizophrenics manifesting severe chronic withdrawal may nevertheless produce moderate *R* and respectable *F* + %. Patterns 8 and 9 differ only in the *Bizarre* score, which is used in this case to distinguish patterns showing definite strengths, by shedding light on the probable nature of the rather low F + %. Thus, in these examples, the diagnostic implication of each score is dependent on the size of other scores, the dependency suggested by a number of extremely useful relationships drawn from Rorschach "theory," which, however, is insufficiently precise at this time to permit exact specification of the patterns without the exercise of professional judgment.

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[2] A scoring guide for this variable is available from the authors on request.

[3] Dr. Wilma Inskip's assistance was especially helpful.

It should be noted that the "Pattern Diagnoses" listed in Table I are not criterion diagnoses. They are the predicted diagnoses for those patients giving the corresponding score pattern. Since the catalogue is not exhaustive, and does not include all possible score combinations, some patients yield patterns different from any that are listed in the table. Such patients are called "Indeterminates."

The main diagnostic problem considered in the present study is the diagnosis of schizophrenicity. Hence, only three diagnostic divisions were employed: Schizophrenic; Borderline Psychotic, which includes all diagnoses that involve a probable predisposition toward schizophrenic pathology but in which schizophrenic symptomatology was not overt at the time of testing; and other, which includes all diagnoses in which the likelihood of future schizophrenic pathology is remote. This grouping of diagnoses does not involve single syndrome simplifications, since each diagnostic group may be predicted from one of several score patterns. Classifying diagnoses into three diagnostic groups provided a means of testing the validity of the pattern system as a whole with a sample too small to permit powerful separate tests of the many single patterns or of all single diagnoses.

Criterion Diagnoses

Three diagnoses other than the pattern diagnosis were recorded for each patient. One was the diagnosis made by the examining psychiatrist, who typically had available to him the report of a prior social work interview and a history of the patient's previous experiences with military and VA medical services. The second diagnosis was made by the examining psychologist at about the same time as the psychiatric diagnosis. The psychologists usually had access to social work reports and history. Their battery of

TABLE I—Catalog of Rorschach Patterns

Pattern number	Pattern diagnosis	R	F%	F+%	MD+%	H	P	Σ:C	Biz.	N[a]
1	Schiz.	0-12	>40	0-75	—	—	—	—	—	10
2	Schiz.	13-15	>40	0-60	—	—	—	—	—	8
3	Schiz.	16-65	—	—	—	0	0-2	—	—	2
4	Other	16-65	0-40	—	>65	>0[b]	>2[b]	—	—	5
5	Schiz.	16-65	>40	0-50	—	>0[b]	>2[b]	—	—	5
7	Schiz.	16-65	>40	51-75	—	>0	0-2	—	>1	1
8	Other	16-65	41-80	51-75	—	>2	>2	—	0-1	8
9	Bord.	16-65	41-80	51-75	—	>2	>2	—	>1	5
10	Schiz.	16-65	>40	51-60	—	0-2	>2	—	>1	0[c]
12	Bord.	16-65	>40	61-75	—	0-2	>2	—	>1	4
13	Other	16-65	>40	61-75	—	1-2	—	>1.0	0-1	10
15	Other	16-65	41-80	>75	—	>0[b]	>2[b]	—	0-1	47
16	Bord.	16-65	41-80	>75	—	0-2	>2[d]	—	>1	4
17	Bord.	16-65	>80	>75	—	>0[b]	>2[b]	—	0-1	8

Note.—Six patterns that had been constructed but which characterized none of the subjects of the present study were omitted from the table.

[a] Includes incidence only in the "representative" sample of 165.

[b] These patterns require either H>0 or P>2.

[c] Two such cases occurred among the schizophrenics in the supplementary sample of 31.

[d] Required only if H=0.

tests varied, but all psychologists had administered and scored a complete Rorschach Test. The third diagnosis was made by a clinic intake committee consisting of a psychiatrist, psychologist, and social worker, who had generally had no personal contact with the patient but worked from written and oral reports from all of the previous interviewers.

The three kinds of diagnosis were usually recorded in standard psychiatric diagnostic terminology. Since validation required that the criterion diagnostic categories be comparable to the categories used for the pattern diagnoses, the criterion diagnoses were classified into the same three broad groups, Schizophrenics, Borderline Psychotics, and Others. The classification arrived at is presented in Table II.

Of the three diagnoses, the psychiatric diagnosis was eliminated from use as a criterion diagnosis, since the questionable reliability and validity of such diagnoses makes them unsuitable for criterial use. The relationship between the psychiatric diagnoses and intake committee diagnoses was, however, compared with the strength of relationship of pattern and psychologists' diagnoses to the clinic intake committee diagnoses.

The role of the psychologists' diagnoses as criterion diagnoses has already been described. That the examining psychologists might unwittingly have used an intuitive approximation to the pattern system does not constitute an invalidating case of criterion contamination, but is the main object of interest in the comparison of pattern diagnoses with psychologists' diagnoses.

The criterial use of diagnoses made by the clinic intake committee (called simply the "clinic diagnosis" hereafter) presents a greater problem of criterion contamination. There is reason to believe, however, that the contamination is minimal. Although the examining psychologist submits a diagnostic impression to the intake committee, the committee psychologist is almost invariably a different person from the examining psychologist; and although the examining psychologist's diagnostic impression is one of only three evaluations submitted to the committee, the committee doesn't simply average these. Rather, it engages in full discussion, having all supporting data at its disposal. Thus, the psychologist's diagnosis is likely to influence the com-

TABLE II—Grouping of Diagnoses Made by Clinic Staff

Diagnostic Categories Used for Analysis		
Schizophrenic	Borderline psychotic	Others
Schizophrenic reaction	Schizophrenic reaction in partial remission	Anxiety reaction
	Schizophrenic reaction in complete remission	Neurotic depression
	Paranoid state	Conversion reaction
	Latent schizophrenic reaction	Psychophysiological reaction
	Depressive reaction	Obsessive-compulsive reaction
	Manic-depressive reaction	Passive aggressive personality (or reaction)
	Incipient schizophrenic reaction	Paranoid personality
		Schizoid personality
		Inadequate personality
		Obsessive-compulsive personality
		Emotionally unstable personality
		Epileptic
		Encephalopathy
		Malingering
		"Maintains good control"
		"Nervous condition"
		"Unstable individual"

mittee only insofar as his evaluation of the patient helps provide a consistent formulation compatible with all other information. Perhaps the most cogent evidence that the contamination problem is less serious than may appear is provided by Meehl and Dahlstrom (1960). Their validation of an MMPI pattern system for the diagnosis of schizophrenia met with nearly identical problems of criterion contamination in part of their sample, but the criterion diagnoses were free from contamination by MMPI data in the remainder of their sample. Comparison of the results obtained with the two parts of their sample thus provides a check on the effect of criterion contamination on the validity estimates obtained. Meehl and Dahlstrom report quite similar validities under the two sets of conditions, thus suggesting that the group dynamics of intake committees nullify most of the potential contamination of criterion diagnoses.

It should be stressed, once more, that the examiners and the intake committees alike were (a) totally unfamiliar with the specific pattern method by which the pattern diagnoses were formulated, and (b) totally unaware of the diagnostic conclusions reached by the pattern method.

Although the use of the clinic diagnoses as criterion diagnoses appeared defensible, a relatively more "pure" though theoretically less desirable criterion measure was available and was employed in addition to the criterion diagnoses already described. The full report made by each examiner contained a statement as to the presence or absence of such current autistic behavior by patients as hallucinations, delusions, and autistic thought or language. When any examiner noted the presence of such behavior, the patient was considered for purposes of the analysis to engage in autistic behavior. Although hallucinations and delusional ideas are not symptomatic exclusively of schizophrenia, it was hypothesized that patients with a pattern diagnosis of Schizophrenia would more likely display autistic symptoms than Borderline or Other patients.

Subjects

Subjects for the study were drawn randomly from the files of a VA mental hygiene clinic. All had been seen in the clinic since the end of World War II, and had been referred for psychological testing in connection with some diagnostic problem. Since the subjects were out-patients when seen in the clinic, the more severe psychotic and organic disorders were automatically excluded. The diagnostic question was frequently (but not predominantly) one of distinguishing between schizophrenia and other disturbances. Thus, the selection of this sample tended to exclude clearcut diagnostic cases. The use of a random sample of diagnostic referrals, rather than the clearcut diagnostic groupings used in most validation studies, puts the discriminatory powers of the present method to a particularly severe test.

A total of 196 patients was selected in two overlapping samples. Because population base rates affect evaluations of efficiency, a random sample of 165 patients, representative of the entire clinic group that had been referred for psychological testing, was used in evaluating the efficiency of the pattern diagnoses. An additional sample of 28 schizophrenics (and three other patients) was added for the purpose of calculating significance tests, for which population base rates are irrelevant. Since the "representative" sample had included 19 schizophrenics, the enlarged sample of 196 included 47 Schizophrenics (by clinic diagnoses), 23 "Borderline Psychotics," and 126 "Others."

RESULTS

Since the present paper is concerned with the superiority of pattern techniques, it seemed important to begin by examining the effectiveness of the eight Rorschach variables in discriminating among the three major diagnostic classifications, Schizophrenics, Borderlines, and Others, under single syndrome and single variable conditions. Accordingly, a separate one-way analysis of variance was performed for each of the eight Rorschach variables, to test for differences among the three diagnostic groups. None of the eight resulting *F*-ratios approached significance at the .05 level. A ninth analysis of variance was performed on the ages of the patients at the time of testing, to rule out the possible confounding effects of sheer age. Again, the *F*-ratio was small, the three means all falling within two years of the overall mean, 31.2 years. The failure to discriminate among the groups with Rorschach scores used in this fashion conforms with results obtained earlier by other investigators. One may conclude, then, that validities obtained with the pattern system depend on the predictive value of patterning.

In order to test how well the score patterns approximate the diagnostic processes of clinical psychologists, pattern diagnoses were compared with psychologists' diagnoses. Table III includes all patients in the sample of 196 except those with Indeterminate pattern or psychologists' diagnoses. In the test of agreement between the two diagnoses, as in all subsequent tests except where otherwise noted, cases with Borderline diagnoses were combined with Other cases because of the small frequency of Borderline cases. The resulting 2 x 2 table was subjected to a *Chi* square test using Yates' correction. Agreement between pattern diagnosis and psychologists' diagnosis is significant at the .001 level, with *Chi* square equal to 25.24.

TABLE III—Comparison of Psychologists' Diagnoses with Pattern Diagnoses

Psychologists' diagnosis	Pattern Diagnosis Schiz.	Bord.	Other	Total
Schiz.	18	3	5	26
Bord.	5	3	14	22
Other	10	4	55	69
Total	33	10	74	117

As a more sensitive test of the tendency for the pattern diagnoses to agree with psychologists' diagnoses, the two were compared in those instances where the psychologist and psychiatrist disagreed as to whether a patient was schizophrenic (Table IV). The pattern method agreed with the psychologists in 22 of the 29 cases, or 76%, significant at the .007 level by Fisher's Exact Test.

TABLE IV—Comparison of Psychologists' and Pattern Diagnoses when Psychologists Disagreed with Psychiatrists

Pattern Diagnosis	Psychologists' Diagnoses Schiz.	Bord. & Other	Total
Schiz.	9	2	11
Bord. & Other	5	13	18
Total	14	15	29

Pattern diagnoses also agreed significantly with clinic diagnoses (Table V), supporting the validity of the pattern diagnoses as indicators of schizophrenia. A *Chi* square test of significance was performed using the 132 patients in the sample of 196 who had definite pattern diagnoses and definite clinic diagnoses. *Chi* square is 10.35, which, with one degree of freedom, is significant beyond the .005 level.

TABLE V—Comparison of Pattern and Clinic Diagnoses

Clinic Diagnosis	Pattern Diagnosis Schiz.	Bord.	Other	Total
Schiz.	16	2	15	33
Bord.	2	6	7	15
Other	16	5	63	84
Total	34	13	85	132

Further support for the validity of the pattern diagnoses of schizophrenia was found in their significant relationship to the presence of hallucinations, delusions, and autistic thought or language (Table VI). All patients in the sample of 196 with definite pattern diagnoses were used in the analysis. *Chi* square is 10.74, which is sig-

TABLE VI — Relationship Between Pattern Diagnoses and Autistic Behavior

	Pattern Diagnosis		
Symptoms	Schiz.	Bord. & Other	Total
Autism	10	6	16
No autism	25	95	120
Total	35	101	136

nificant beyond the .005 level.

Although it is not the immediate task of the present study to produce a clinically more efficient diagnostic tool, it is naturally of interest to compare the diagnostic efficiency of the pattern method to that of the psychologist and psychiatrist. This is accomplished in Tables VII, VIII and IX, where diagnostic efficiency is defined in terms of agreement or disagreement with the clinic diagnoses of Schizophrenia and Borderline Psychosis, and efficiency is described separately for three classes of outcomes: successes (agreement with clinic diagnoses), false positives, and inability to attach a definite diagnosis.

The significance of differences between pairs of percentages was established by tests of differences between correlated proportions. Since the tests are applicable to percentages of correct and false positive diagnoses only when every patient had received definite diagnoses by both the methods being compared, some subjects included in Tables VII, VIII, and IX had to be eliminated for purposes of the significance tests. In no comparisons were the percentages appreciably altered by their elimination.

TABLE VII — Percentage of Cases in Which Patterns, Psychologists, and Psychiatrists Made Definite Diagnoses, Classified by Clinic Diagnosis

	Clinic diagnosis	
	Schiz.	Bord.
Source of diagnosis	($N = 19$)	($N = 22$)
Patterns	74%[a]	68%[b]
Psychologists	90%	91%
Psychiatrists	100%[a]	95%[b]

Note.—All groups are drawn from the representative sample, $N = 165$.

[a] The percentages 74 and 100 differ significantly, $.10 > p > .05$, two-tailed.

[b] The percentages 68 and 95 differ significantly beyond the .05 level, two-tailed.

TABLE VIII — Percentage Agreement with Clinic Diagnosis of Diagnoses by Patterns, Psychologists, and Psychiatrists

Source of diagnosis	Clinic diagnosis Schiz.	N	Bord.	N
Patterns	50%	14	40%	15
Psychologists	47%	17	40%	20
Psychiatrists	47%	19	52%	21

Note.—All groups are drawn from the representative sample, $N = 165$.

None of the differences among patterns, psychologists, and psychiatrists reached significance at the .10 level, two-tailed.

The most striking differences in the efficiency of the three diagnostic methods appears in the higher proportions of indeterminate diagnoses produced by the patterns in contrast to the psychiatrists. The difference in the proportion of indeterminate diagnoses that patterns and psychiatrists attached to the 22 Borderline Psychotic cases in Table VIII (68% and 95%, respectively) was significant at the .05 level (two-tailed), and the corresponding difference for the 19 Schizo-

TABLE IX—False Positive Rate of Patterns, Psychologists, and Psychiatrists

	Non-Schizophrenics[a]		Non-Borderlines[a]	
Source of misdiagnosis	Percentage called Schizophrenics	N[b]	Percentage called Borderlines	N[b]
Patterns	18%[c]	99	6%	98
Psychologists	9%	108	12%	105
Psychiatrists	6%[c]	125	7%	125

Note.—All groups are drawn from the representative sample, $N = 165$.

[a] Clinic diagnosis was the criterion of accuracy.

[b] Includes only cases given definite diagnosis by each method.

[c] The percentages 18 and 6 differ significantly, $.10 > p > .05$, two-tailed.

phrenic cases (74% and 100%) was significant at the .075 level. The only other difference that approached significance was the higher proportion (18%) of non-Schizophrenic cases given false-positive Schizophrenic diagnoses by the pattern method, in contrast to the 6% false positives of the psychiatrists (Table IX). The difference, for 89 cases, is significant at the .10 level.

The efficiency of the pattern method did not differ significantly from that of the psychologists in any comparison, and the efficiency of the pattern method in correctly diagnosing either Schizophrenics or Borderline Psychotics did not differ significantly from the corresponding figures for either psychologists or psychiatrists.

DISCUSSION

The limited objectives of the study appear to have been realized. The Rorschach score patterns tested produced diagnostic results that resemble to a remarkable degree the results of diagnostic evaluations by clinical psychologists, and to a significant degree, the diagnostic results of a complete clinic intake evaluation. The subjects, though bearing different diagnoses, were drawn from a rather homogeneous patient population, all posing some kind of assessment problem, which constituted a difficult validation situation for the Rorschach patterns. Finally, since the patterns were constructed on the basis of clinical experience with other patients, the present validation really has the status of a cross-validation.

It is in order, however, to point out some limitations of the results. First, although the patterns were constructed to approximate the judgmental processes of live clinical psychologists, and while they in fact produced results similar to the results produced by psychologists, there is no direct evidence that the clinicians' methods of treating the scores actually resembled the pattern catalog. Secondly, there are a great many other ways in which the eight Rorschach variables could have been combined, not to mention the many other Rorschach variables that might have been used instead. Out of considerations of economy, more nearly optimal statistical methods for combining variables were passed over. Accordingly, the present study can be considered to have helped establish the utility of some such pattern approach, but not the superiority of these particular patterns.

Finally, it should be noted that the clinical usefulness of the present patterns depends on one's goals in applying them – in other words, on the cost of making various kinds of errors in the clinical situations in which the patterns are to be applied. If the goal is simply to maximize the percentage of cases correctly diagnosed, then a more efficient method for the population from which the present representative sample was drawn is to call all patients "Others." With only 19 Schizophrenics and 22 Borderline cases out of 165, this method yields 70% agreement with the clinic diagnoses, which is somewhat less than the 76% agreement obtained by the psychiatric examiners but is greater than the agreement of 68% by the psychologists and 64% by the pattern method. The percentages must be qualified. First, indeterminate cases were excluded from the calculations. Second, it is generally recognized that clinic diagnoses are influenced more by the psychiatrist's than by the psychologist's diagnoses. These considerations aside, the pattern method was, for this sample, the weakest of the methods with which it was compared. However, in a patient population that contains a larger proportion of schizophrenic patients, the pattern method would yield better agreement than the method of calling everyone an "Other." Alternatively, if it were decided that the undesirability of misdiagnosing schizophrenics (the "cost" of false negatives) is appreciably greater than the undesirability of misdiagnosing Others (the "cost" of false positives), the "cost" of calling all patients nonschizophrenic would be very high and the pattern method would have gained relative efficiency.

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The Catharsis Value of Aggression Fantasy

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Summary: Two studies were conducted to test the general hypothesis that the expression of aggression in fantasy to one stimulus reduces the probability of occurrence of aggression fantasy to a following stimulus. In both studies the results were contrary to the hypothesis, *i. e.*, probability of an aggression fantasy response did not change to later stimuli. Further, intensity of aggression response increased as a function of the ordinal position of the fantasy eliciting stimulus and the fantasy of aggression pull of a given stimulus was significantly influenced by the sequence of preceding stimuli. Discrepancies between these results and those of other studies are discussed in terms of aroused versus base levels of aggression drive.

The manifestations of such generally taboo drives as sex and aggression in human behavior are of interest not only to the psychologist but also to the socializing agents and institutions of the society. Parents, educators, and legal authorities are faced with the manifestations of these drives in one form or another almost constantly. One might say, in fact, that socialization consists of the redirection or straight forward suppression of such drive manifestations using punishment, withholding of reward, or reinforcement of alternative behavior as the motivating agents.

Similar predictions about one effect of such socialization practices can be derived from psychoanalytic and drive-reduction type theories particularly in the area of aggression. When the overt behavioral manifestations of a drive are either not rewarded or actively punished, there likely will be another outlet sought for that drive. One such outlet is to be found in the fantasy life of the individual. Psychoanalytic formulations would assert that aggression in fantasy would serve a cathartic function for the aggressive drive, thereby satisfying or "working off" aggressive impulses. Drive-reduction theory rephrases this to assert that the expression of the drive in fantasy has the effect of reducing the drive strength (Feshbach, 1955). Either formulation leads to the prediction of a diminution in response strength after the expression of aggression fantasy.

However, the dynamics of aggression fantasy may be viewed in yet another way, which again leads to the same prediction. When an individual has experienced excessive punitive action for expressing overt aggression, the effect may be so extreme that even the expression in fantasy of such behavior will be sufficiently anxiety provoking to inhibit similar subsequent responses. The findings of a number of investigators (Lesser, 1958; Mussen & Naylor, 1954) would appear to support the operation of such a process.

The primary purpose of the present study was to test the general hypothesis that the expression of aggressive fantasy to one stimulus will reduce the probability of an aggressive fantasy response to an immediately following stimulus. This hypothesis may be adduced from either or both of the above two lines of reasoning: (a) that the expression of aggression in fantasy serves a cathartic function thus reducing a hypothetical aggressive need; or (b) that the expression of aggression even in fantasy arouses anxiety and thus inhibits expression in the succeeding response.

The prediction is the same in both cases.

The second purpose of the study was to determine empirically the optimum order of stimuli (of known aggression fantasy pull) for eliciting maximum variation in total aggression fantasy. Reitman and Atkinson (1958) have pointed to the importance of order effects in projective stimuli. Maximizing variation in an instrument of fixed length permits finer discriminations to be made among subjects.

STUDY 1

Six pictures portraying two boys in some form of interaction were used as stimuli. The pictures were selected from a pool of 20 for which data were available on scoring reliability and aggression fantasy pull. On the basis of these data, pictures were selected which (a) represented a range in aggression pull from low to high, and (b) could be scored with high reliability.

The pictures were assembled in individual booklets representing 30 different orders. Each picture appeared in each of the six ordinal positions 5 times and followed each of the other pictures with equal frequency. The booklets contained, in addition to the stimuli, an identification sheet and lined pages on which the *S* wrote his stories. The subjects were 120 sixth grade boys from a Maryland suburban school system in a lower-middle class area. The schools were nominally integrated, but there were no Negro *Ss* in the classes tested.

Administration was in group form to groups of 20 to 30 boys at one time. The instructions were essentially the same as for the TAT and *Ss* were allowed precisely five minutes in which to write their responses.

Aggression fantasy in the stories was defined as: (a) one or more of the characters or character-surrogates in the story being hurt, about to be hurt, or having been hurt in the past, either physically or psychologically; or performing actions intended to hurt; (b) the interaction of the characters in the story being one of strife or conflict (past, present, or future); (c) hostile feelings or intent to hurt on the part of one or more of the characters or dangerous threat from the non-human environment. A point was scored for each separate indication of *a*, *b*, or *c*; and these points were summed across the series for the total fantasy aggression score. Using this scoring system coefficients of agreement (phi) between independent judges exceed .90.

Results

To test the hypothesis that the giving of an aggression fantasy response (AFR) to one stimulus decreases the probability of an AFR to the immediately following stimulus, the stories were scored on a binary basis of presence or absence of aggression fantasy. Fifty-five *Ss* gave their first AFR to the first picture seen, 34 to the second, 14 to the third, 10 to the fourth, 5 to the fifth, one to the sixth, and one *S* gave no AFR to any of the six pictures. These last two individuals, therefore, could not be used in the test.

Of the 55 *Ss* whose first AFR was to the first stimulus, 28 gave another AFR to the immediately following picture; of the 34 whose first AFR was to the second picture, 21 followed it with another. The observed frequencies to the succeeding picture for the remaining 3 groups of *Ss* were 5, 5, and 3, in that order. Expected frequencies were then calculated for each group based on the sum of observed AFRs to the remaining stimuli. For example, the first group of 55 *Ss* made a total of 153 additional AFRs to the remaining 5 stimuli. On an actuarial basis, one fifth of these (30.6) would be expected to occur to the stimulus immediately following that to which the first AFR was given. The second group of 34 *Ss* gave 76 additional AFRs, and the expected frequency would be one fourth of that number, or 19.

A Chi Square analysis of the 2 x 5 table thus formed gave a value of 1.43, a modest and insignificant number. The sum of the expected frequencies of AFR for all 118 *Ss* was, in fact, 63.06, almost identical to the observed value. We may conclude, therefore, that the evidence does not support the hypothesis of a diminished probability of occurrence of an AFR after the first such response has been given.

The second analysis made was to determine if a decreasing gradient of strength of AFR occurred from the first picture seen to the last. Since this hypothesis was concerned with strength of response instead of simple probability of response, the stories were scored as described above, but each score was then divided by the number of words in the story. Since the scores are in a frequency form, correction for length of story was necessary.

The corrected scores were then arranged in a 6 by 6 table, the rows representing stimuli (pictures *a* to *f*) and the columns the position in which the pictures had been seen (first to sixth). There were five entries in each row by column cell, each entry representing the sum of the scores of 4 *Ss* who had had stimuli arranged in the same order. Thus the first entry in $R_1 \times C_1$ was the sum score for picture *a* of the 4 *Ss* who had seen the pictures in order *a, b, c, d, e, f;* the second entry was the score for picture *a* of the 4 *Ss* who had had order *a, c, e, b, d, f,* and so on.

An analysis of variance (Table I) was then made of the data thus ordered. All three effects, pictures, position and interaction were statistically significant. The picture effect is, of course, a trivial observation since the stimuli had been designed (and pretested) to have differential aggression fantasy pull. The ordinal position effect, however, was the opposite of that hypothesized in that the mean corrected AFR was lowest for positions 1 and 2. Tests of the differences among column means indicated that only those between either 1 or 2 and the remaining four ordinal positions were significant. The significant interaction indicates, of course, a differential pull for aggression fantasy for the pictures depending upon their position within the ordinal sequence.

TABLE I—Analysis of Variance of Aggression Fantasy Scores Corrected for Story Length

Source	*df*	*V*	*F*
Pictures	5	107879	5.91***
Ordinal Position	5	4367	2.39*
P x O	25	3728	2.01**
Remainder	144	1826	

*p<.05 **p<.01 ***p<.001

As a second test of the first hypothesis the significance of the difference in intensity of the first AFR of each subject and that of his response to the immediately following stimulus was calculated using the AFR scores corrected for story length. The *t* ratio of the difference was 1.54 which with an *N* of 118 does not reach the .10 level of significance.

The net results of this first study do not support the general hypothesis of the cathartic effect of aggression fantasy. In fact the analysis of variance suggests the opposite, an initial inhibition of expression of aggression fantasy followed by a rise to a relatively stable level. On the basis of a variety of evidence sources these results were somewhat surprising. Consequently, a second study was designed, both to cross check results of the first as to the cathartic value of expression of aggression fantasy, and to examine in more detail the positive effect on the aggression fantasy pull of the stimuli.

STUDY 2[1]

The stimulus materials were the

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[1] This study, conducted by the second author, was submitted in partial fulfillment for the M. A. degree at the University of Denver.

same as those described earlier, *i. e.,* six pictures of varying degrees of aggression fantasy pull. They were assembled in booklets, as before, except that only ten different sequence orders were used. Five of the orders were constructed by examining the picture by ordinal position mean AFR values of Study 1 and attempting to place each picture at that position in the sequence where it had elicited the largest average score. Five orders were used, since it was impossible to construct a single one which allowed simultaneous maximization of scores for all six pictures.

Five other sequences were also constructed on the same principle, but designed to minimize aggression fantasy.

The orders used (where A and B represent low pull pictures, C and D medium pull, and E and F represent high pull pictures) were as follows: for high pull: C B F E D A; C E A D F B; C B F D E A; E C F D B A; and E D B A F C. The low pull orders used were, C B E D F A; E A C F B D; E F C B A D; D B E C A F; and E B C F A D. It should be noted that this procedure treats each picture individually and ignores any effects of the preceding picture on sequence of pictures upon its AFR pull.

The subjects were 50 6th grade boys from a suburban school near Denver, Colorado. The median socio-economic level was middle class not too dissimilar to the *Ss* of Study 1. Testing was carried out in groups as before and the scoring system was identical. The *Ss* were assigned at random to the ten orders with the restriction that there be only five *Ss* per order.

Results

Again the hypothesis of diminished probability of an AFR after one such response had been given was examined. The stories were scored on a binary basis of presence or absence of aggression fantasy. Of the 50 *Ss,* 38 gave an AFR to the first stimulus picture. Of these 38, 27 gave an AFR to the immediately following stimulus. All of the 3 *Ss* whose first AFR was to the second stimulus gave an AFR to the third picture. Of the 8 who gave their first AFR to the third picture, 4 gave an immediately following AFR. One *S* gave his only AFR to the fourth picture. These data, along with expected values, were arranged in a 2 x 5 table as before and Chi Square computed. Its value was .56, again nonsignificant. The results obtained in Study 2 thus confirmed those obtained in Study 1, with respect to the hypothesis that the expression of aggression fantasy to one stimulus would decrease the probability of such a response to the immediately following stimulus.

An analysis similar to that of Study 1, concerning the decreasing strength of response from first stimulus to last, was also conducted. The scores (corrected for story length) were arranged in a 10 x 6 table, the rows representing the 10 orders of presentation, and the columns the position in which the pictures had been seen (first to sixth). The entries in each row by column cell were the scores of the five *Ss* who had had the stimuli arranged in the same order.

An analysis of variance was performed on this ordering of the data. As in Study 1, all three effects, orders, position, and interaction were statistically significant. The ordinal position effect was similar to that obtained in Study 1—contrary to the hypothesis of decreasing response strength. The mean corrected AFR was lowest for position 2 and highest for position 6, with only mean differences between 2 and the last four columns being significant. The interaction again indicates that position in the ordinal sequence affects picture-pull for AFR.

The primary concern of this study, however, was with the orders which were designed to elicit differential strengths of AFR's. The global prediction implicit in the procedure was that there would be a significant order effect and, this global effect was obtained. However, when the five orders designed to maximize AFR were compared to the five orders designed to minimize AFR no significant differences were observed. The investigator's painstaking efforts to deliberately maximize or minimize total AFR had failed miserably.

DISCUSSION

The results of both studies may be summarized as follows: a) the probability of an aggression fantasy response immediately following the first of such responses is not demonstrably different from that expected on a chance basis, b) intensity of aggression fantasy to stimuli is greater to the later members of a sequence of such stimuli than to the earlier elements, and c) the aggression fantasy pull of a stimulus is significantly affected by its ordinal position in a sequence of such stimuli.

As observed earlier, results (a) and (b) seem directly contrary to any hypothesis of the cathartic value of fantasy aggression. Rather than a decrease in response intensity there is a form of potentiation as a function of repeated stimulation. This is, of course, quite divergent from the observations of numerous clinicians as well as most experimental studies. The explanation would appear to lie in the levels of arousal of the drive at the time of assessment. In the present study, the initial state might best be described as a resting level of aggressive drive. Under such conditions, presentation of aggression fantasy elicition stimuli, after a tentative inhibition, produces a fairly stable intensity of response. In the clinical situation and in such studies as that of Feshbach (1955), aggression level has been either situationally or experimentally raised. In this situation, the expression of aggression in fantasy may act to reduce the initial level and be labeled catharsis. But many other actions may serve the same purpose, e.g., prayer, passage of time, etc. A substantial amount of research would be necessary to establish the optimum method of reducing aggression under arousal conditions (cf. Feshbach, 1964).

Result (c) listed above has one straight forward implication. Since it proved impossible to maximize or minimize total aggression fantasy on the basis of simple manipulation of ordinal position of the stimuli and while it was clear that ordinal position had a quite significant effect, it follows that this effect must be due to the *pattern* of stimulus presentation. In other words, it is not only ordinal position but what type of stimulus immediately precedes, or precedes at even a greater interval, that determines the fantasy pull value of the picture in question. Such a conclusion points up very strongly the need for a standard order of presentation of fantasy stimuli if reliable inter- and intra-individual assessments are to be made.

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Diagnostic and Actuarial Correlates of Thematic and Questionnaire Measures of Hostility[1]

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Summary: A psychiatric and normal population of 158 men took tests yielding 25 measures of hostility. These measures could be classified as a) Thematic Story scores, b) Judgment scores, and c) Questionnaire methods. Eight different classifications were made from the population including Psychiatric Classification, Interpersonal Expression of Hostility, Educational Level, and Marital State. Each of the 8 categorizations was analyzed by analysis of variance for the 25 hostility measures yielding a matrix of 200 F values.

The results indicated that the Questionnaire methods were most useful overall with the Thematic Stories and Judgment methods finishing second and third respectively. None of the methods showed practical utility as a clinical instrument at this stage, but several new methods of analysis seemed worthy of further investigation.

This study investigated some behavioral correlates of 25 measures of hostility using a psychiatric and normal population of 158 men. Earlier analysis (Murstein & Wiens, 1963) had indicated that these measures were factorially complex, containing nine distinct factors. The question remained, however, whether any of the measures showed any useful behavioral correlates when applied to a psychiatric population. The hostility measures employed represented three approaches; TAT story analysis, judgments, and questionnaires. The TAT variables were obtained by analyzing the hostility present in thematic stories in manifold ways. The Judgment variables represented judgments made by the Ss about thematic cards with respect to hostility, and the Questionnaire Methods represented paper and pencil approaches to hostility measurement.

Were any of these approaches useful in differentiating among diagnostic classifications? Did they relate to non-diagnostic categories like educational and occupational level among others? These were the questions motivating the study.

The "cost" factor also was considered. If all of the methods had approximately equal merit, then the Judgment category should be most useful since it involved a minimum amount of examiner and patient time. In this regard, the Questionnaire Methods are somewhat more costly while the administration and analysis of thematic stories would appear to be most expensive.

A second question to be investigated was how the stimulus structure of the cards might be related to diagnostic and actuarial behavioral correlates. Since the cards had already been scaled for hostility in an earlier study (Murstein, David, Fisher and Furth, 1961), it was possible to trichotomize some of the hostility measures into cards Low, Medium and High on hostility and to determine the comparative efficacy of these measures with reference to the behavioral categories.

The eight behavioral categories investigated consisted of five actuarial and three diagnostic classifications. The actuarial variables were Occupational Level (6 point scale adapted from Roe 1956, ranging from most prestigeful to least prestigeful), Years of Education (4 point scale), Marital State (married or widowed, single, separated, divorced). Age (5 point scale), Drugs (taking or not taking drugs at the hospital).

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The diagnostic variables included first Psychiatric Diagnosis (Neurotics 12, Psychotics 48, Organics 7, Character Disorders 73, Normals 18, i.e. Psychiatric Aides). Because the 25 measures employed all related to hostility, it might well be that they would prove most useful, diagnostically speaking, if the subjects could be ordered on a continuum of degree of intensity and direction of expression of overt hostility. The Interpersonal Dimension was constructed, therefore, and consisted of Interpersonal Hostility (murder, assault, verbalized threats) 53, Non-Interpersonal Hostility (embezzlement, wreckage of property) 16, Hostility Against Self (attempted suicide, threats against self) 37, Non-Hostile Patients 34, Normals (psychiatric aides) 18.

Last, a Special Categorization which, in essence, provided a finer discrimination among various kinds of hostility, was employed. This nine point categorization included Murder and Assault 11, Threatened Assault and Verbal Abuse 20, Rape 14, Sex Offense (non-rape, e.g., molesting, exhibition, etc.) 8, Non-Interpersonal Hostility (referred to above) 16, Drug Addiction 26, Suicide and Attempted Suicide 11, Non-Hostile Patients 34, Normals 18.

The 25 measures of hostility were as follows:

Free Sort Judgment. The *S*s received a definition of hostility and *E* asked them to sort the 31 TAT cards into 8 piles ranging from the Most Hostile (No. 8) to the Least Hostile (No. 1). They were free to put as many cards in a given pile as they wished. From an earlier study with college *S*s (Murstein, David, Fisher and Furth, 1961), scaled values had been obtained for each of the 31 cards via the Thurstone Equal Appearing Interval Method. These values were simplified to the nearest integer, and discrepancy scores obtained, consisting of the sum of the discrepancies between the scaled values of the earlier study and the obtained value of the present one.

Forced Sort Judgment. The *S*s were instructed to put a fixed number of cards in each of the 8 piles, the number being determined by the actual numbers of TAT cards falling within a given integer value in the Murstein *et al.* study (1961). A discrepancy score was obtained by, as before, summing the discrepancies between the judgments and the normative values for the 31 cards.

The discrepancies for both the forced and free judgment tasks were analyzed without regard to sign *(Free Sort Absolute, Forced Sort Absolute)*, and utilizing the sign *(Free Sort Relative, Forced Sort Relative)*, thus yielding four variables.

H-Technique Judgments. The nine cards (3GF, 6GF, 7GF, 9GF, 10, 13B, 13G, 13MF, 18BM) used to construct a H-Technique scale in the Murstein *et al.* study (1961) were selected from the 31 TAT cards and the subjects asked to sort the cards into one of three piles, Hostile, Undecided, Not Hostile. The resulting scale had yielded a coefficient of reproducibility of .97 in the Murstein *et al.* study, but its clinical utility was not known. Accordingly, it was put into the matrix of variables to be analyzed.

Rank Test 31 Cards. S ranked each of the 31 cards from most to least hostile. These were compared with the rank normative value of the 31 cards and rho coefficients obtained.

Rank Test 9 Cards. As a more stable index, the nine most discriminatory TAT cards based on the Murstein *et al.* study (3GF, 6GF, 7GF, 9GF, 10, 13B, 13G, 13MF, 18BM) were compared to their normative value ranks, and rho coefficients again computed. Both of the above coefficient values were transformed into Fisher z scores and used in the analytic matrix.

TAT. The aforementioned nine TAT cards were now presented in randomized order to the subjects using the Murray instructions, and the *S*s were instructed to write stories in the booklets provided. These stories were scored by the Hafner and Kaplan TAT Hostility Scale (1960). Earlier, stories obtained from the college normative population had been scored by this scale and transformed into standard z scores. The equal appearing interval judgment values from another college population had likewise been transformed into z scores. By transforming the present subjects' scores into score equivalents and subtracting them from the z scores for the scaled values, a discrepancy score was obtained between story and scaled stimulus value. *Stimulus Discrepancy Relative* and *Stimulus Discrepancy Absolute* were thus added to the matrix.

In addition, analysis of the story itself yielded the Hafner and Kaplan *Fantasy Aggression* score and scores for *External Punishment* (EP), *Internal Punishment* (IP), *Remoteness* (R), and the ratio scores IP/FA, IP/EP, and R/FA, obtained with modification from the descriptions provided by Purcell (1956). The modifications consisted of the FA scale provided by Hafner and Kaplan, which was felt to be a more sensitive index than the one utilized by Purcell, and a slight abridgement of the five categories Purcell used in his R score, to four. These scores reflect various expressions of hostility (FA, EP) tempered by the alleged inhibitions to hostile expression (IP, R).

Buss Hostility Scales. This hostility questionnaire consisted of 75 true-false items relating to the expression of hostility (Buss, 1957). In addition to the *Buss Total Score,* the following subscales for hostile expression derived from the 75 items were also included: *Assault, Indirect, Irritability, Negativism, Resentment, Suspicion, Verbal* and *Guilt.*

Zaks and Walters Aggression Scale. The test consists of 12 statements most of which do not appear to deal directly with hostile expression, (Zaks and Walters, 1959), to which *S* answers whether he agrees or disagrees. Originally selected from a pool of 33 items, the 12 final items each significantly differentiated an assaultive from a control group.

All 140 patients were inmates at a large northwestern state hospital at the time of testing. They were tested in groups of 3 to 6 over several sessions.

RESULTS

Each of the 8 classifications was subjected to a one-way analysis of variance for each of the 25 hostility measures, resulting in a matrix of 200 F values. Table I reproduces all F values found to be significant at the .05 level or beyond. Nine of the hostility measures, Internal Punishment, Remoteness, Internal Punishment/External Punishment H-Technique, Free Sort-Relative, Rank Correlation 31 Cards, and the Buss Scales, Indirect, Irritability and Negativism showed no significant F values over the 8 categorizations and are not included. Similarly, two behavioral variables, Drugs and Marital State are omitted for the same reason.

Examination of Table I indicates a significant value for IP/FA, which is a thematic measure of inhibition of aggression. This significance is completely attributable to the fact that Professionals tended to have mean scores two and a half to five times larger than any other single group. The significant Stimulus Discrepancy-Relative score, in general, reflects an increasing discrepancy between the hostility in the thematic card and the hostile content of the story as one moves down the socio-economic scale.

The variable Education is signifi-

Table I—Analysis of Variance for Psychiatric Population For Behavioral Correlates of Hostility Measures

		Behavioral Category					
Test Type	Hostility Measure	Occupational Level	Years of Education	Age	Psychiatric Diagnosis	Interpersonal Dimension	Special Categorization
TAT	Fantasy Aggression (FA)			2.82*			
TAT	External Punishment			2.44*			2.13*
TAT	Internal Punishment/FA	2.95*	5.45**				
TAT	Remoteness/FA					3.21*	
Judgment	Stimulus Discrepancy (Absolute)						
Judgment	Stimulus Discrepancy (Relative)	2.31*		2.59*			
Judgment	Free Sort (Absolute)		7.07***				
Judgment	Forced Sort		3.37*				
Judgment	Rank Correlation (9 cards)			2.87*			
Questionnaire	Buss Total Hostility				3.08*	2.50*	
Questionnaire	Buss-Assault			4.82*			
Questionnaire	Buss-Resentment						
Questionnaire	Buss-Suspicion		2.77*		3.46**	5.00**	2.80**
Questionnaire	Buss-Verbal				2.94*		
Questionnaire	Buss-Guilt				4.09**	4.28**	2.52**
Questionnaire	Zaks & Walters Aggression		3.60*		2.92*	3.43**	2.67**

* Significant at .05 level

** Significant at .01 level

*** Significant at .001 level

cantly differentiated with regard to IP/FA with the ratio rising as a function of increasing education. The Free-Sort Absolute measure produces an extremely significant F value $p<.001$. The relationship is essentially curvilinear with little education and a great deal of education producing the greatest amount of discrepancy between the normative values and the subjects' judgments. The Forced Sort also shows a significant relationship along the same lines. Two of the questionnaire measures, Suspicion and the Zaks & Walters Hostility Scale, also proved significant. In both cases, the more uneducated the subject, the higher was his score.

Age showed significant differences for the TAT variables Fantasy Aggression and External Punishment, the relationship in both cases being curvilinear with the youngest age group <21 years and the oldest >50 years showing greater scores than the intermediate groups.

The Rank Correlation (9 cards) and the Stimulus-Discrepancy Relative variables both showed that the youngest and oldest groups were most deviant from the normative values in their judgments of the TAT cards. Last, the Assault variable from the questionnaire indicated, as might be expected, that the scores varied inversely with age.

Turning to the Psychiatric Diagnoses category, all significant differences were found to reside within the questionnaire measures Buss Total Hostility, Buss-Suspicion, Buss-Verbal, Buss-Guilt, and Zaks & Walters Aggression. The Buss scales invariably showed the Normal group as lowest in all measures and with one slight exception, the Neurotic scores as highest, with Organic, Character Disorders and psychotics occupying an intermediate range. The Zaks and Walter measure showed Normals to be lowest with Organics highest. The small number of subjects in the latter group, however, $(N=7)$, did not allow any significant difference to arise between these two groups when tested by Scheffé's Contrast test (Edwards, 1960).

When the Interpersonal Dimensions of Hostility were analyzed, the results were largely similar to the results for Psychiatric Diagnosis, with Questionnaire Methods accounting for four of the five significant values reported. For the Buss-Total Hostility, Buss-Suspicion, Buss-Guilt and the Zaks and Walters Aggression scales, the Normals were always the lowest scoring group and the Hostile-Interpersonal group highest, with the others intermediate. The only TAT score to prove significant was Remoteness/Fantasy Aggression. Here, the Normals showed the lowest scores and the Non-Hostile Patients the highest scores.

The Special Categorization which divided the subjects into as many discrete categorizations as possible and included several of the categories of the Hostile-Interpersonal dimension within it, showed a similar pattern of significant values. Buss-Suspicion, Buss-Guilt and the Zaks and Walters Aggression scale were significant with the Normal Scores invariably the lowest. The only TAT variable to show a significant value was External Punishment although no clear cut differences between the groupings were readily discernable. It is of interest, however, that Rapists scored lowest on this variable while those categorized as Sex Offenders (other than rape and including child molesters) scored next to the highest, thus belying the tendency often found to think of these individuals under the single rubric of Sex Offenders.

The second part of the analysis focused on the differential effects of the TAT stimulus. The Fantasy Aggression Variable, Stimulus Discrepancy (SD) Absolute, and Stimulus Discrepancy (SD) Relative variables were each trichotomized into Low, Medium and High scores as obtained from the division of the nine TAT cards used into these three subsets by a scaling procedure described in a previous study (Murstein *et al.*, 1961). Of the eight categories analyzed, only four showed even one variable to be significant. These are listed in Table II.

Inspection of the mean scores of the subgroup within the occupational level category shows Fantasy Aggression-High to be significant but no monotonic or curvilinear trend among the subgroups was noted.

For the Marital State Category, SD (Absolute) -Medium is significant with divorced and separated individuals each showing more deviancy than single or married ones. The Drug categorization yielded two significant F Values, with individuals taking drugs exhibiting more FA to the medium cards than Ss not taking drugs, and also showing more deviancy to medium cards as measured by SD (Relative). Last, the Interpersonal Dimension category showed two significant F values, both occurring with the SD Relative measure. On low-cards, the normals were lowest in deviancy while the non-interpersonal hostile individuals (e.g., embezzlers) showed the greatest deviancy. With high-cards, however, normals were no less deviant than most of the groups with hostile-interpersonal individuals (e.g., murderers) showing the least amount of discrepancy between their stories and the stimulus properties of the cards.

DISCUSSION

The findings by and large are disappointing regarding the value of the particular TAT measures investigated not only for psychiatric diagnosis but also for the more dynamically relevant categorizations such as the Interpersonal Dimensions of Hostility. Because of the non-independence of some of the measures and the fact that all measures were replicated over the same population, an exact statement regarding the number of significant differences over chance expectation cannot be made. It seems likely, however, from a perusal of the number of significant values obtained (26) to the number computed (200) that the measures yielded somewhat better than chance findings, but of such a low magnitude as to be of little practical value.

The Questionnaire methods yielded the most significant values and since they are less costly to administer than the TAT, they would seem the most useful of the kinds of measures surveyed. The Judgment measures which are the easiest of all to administer, unfortunately, proved the least

TABLE II—F Values for Analysis of Variance of Behavioral Categories for TAT Stimulus-Pull Measures

Hostility Variable	Behavioral Category			
	Occupational Level	Marital State	Drugs	Interpersonal Dimensions
Fantasy Aggression—Low				
Fantasy Aggression—Medium			5.63*	
Fantasy Aggression—High	2.47*			
Stimulus Discrepancy (Absolute) —Low				
Stimulus Discrepancy (Absolute) —Medium		3.66*		
Stimulus Discrepancy (Absolute) —High				
Stimulus Discrepancy (Relative) —Low				2.72*
Stimulus Discrepancy (Relative) —Medium			3.88*	
Stimulus Discrepancy (Relative) —High				2.40*

effective. Further, the trichotomization of the TAT cards into Low, Medium and High subsets did not yield any substantial number of significant values nor any clear difference between the subsets in this regard.

There were, however, some specific findings which are of interest. The IP/FA ratio seems to be a socio-economic and educational correlate. Apparently, the upper classes in terms of education and occupation learn to stifle aggressive feelings and to turn them inward (internal punishment), whereas the lower class is more apt to express these feelings outwardly. The tendency to express hostility on the questionnaires, thus, was greater for the less-educated than for the more-educated.

Our data also indicate that the greatest conformity to the stimulus values of the cards occurs from young adulthood >21 years old through middle age <50 years old. Subjects either younger or older expressed greater TAT aggression in their stories and more deviancy from the stimulus value of the cards in overestimating the amount of hostility present in the cards.

The questionnaire measures seemed to reflect conflict about hostility rather than amount of hostile need *per se*. Normals, with the least conflict, accordingly, expressed the least hostility.

Neurotics who, presumably, had the greatest conflict regarding the expression of hostility showed the highest scores. Character disorders, who represent individuals with higher hostile expression but presumably less conflict, manifested intermediate scores. This supports the belief that these questionnaire methods should be interpreted as reflecting ability at conflict resolution rather than amount of hostility present.

Last, while the division of the cards into Low; Medium and High Hostility yielded little in the way of significance values overall, there were some specific results which perhaps merit further investigation. Is deviancy of perception of hostility from normative values related to marital adjustment as the data suggest? Are cards highly structured for hostility valuable in detecting hostile individuals because these persons attempt to mask their hostility by more strict adherence to the stimulus properties of the cards in their stories as compared to the greater deviancies manifested by Normals? Only further research, currently under way, can indicate whether these are essentially chance findings or helpful directive cues to new findings.

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Rapid Changes in Overt Behavior Reflected in the Draw-a-Person: A Case Report

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Summary: This case report presents two Draw-A-Person protocols obtained from the same patient with a five-day period intervening between the two testing sessions. During this brief period of time the patient's overt behavior changed from that of an angry paranoid to that of a meek and submissive individual. The two DAP protocols very clearly reflect this behavioral modification and testify to the sensitivity of the DAP to such personality changes.

The purpose of this paper is to present a case where clearly observable changes in overt behavior were correlated with marked changes in Draw-a-Person (DAP) productions. This particular case has the advantage of demonstrating extreme differences between two DAP protocols along with behavior changes which occurred rapidly and were also of an extreme degree. Hence, the changes that will be discussed appear to be quite definite and easily demonstrated. The discussion of behavior changes will be combined with inferences regarding ongoing personality processes which will highlight the sensitivity of the DAP to the operation of such processes.

John, the pseudonym we will use for this patient, was age 25 at the time of his first hospitalization. He was seen as being a good-looking, tall, muscular young man of bright-normal intelligence (WAIS Full Scale I.Q. of 112). Social Service reports indicated that John had been living a very quiet life with his elderly mother. The patient had very few friends and certainly no social life. His job was one which kept him away from contact with the many people working for the same firm. John operated some small machinery and took care of stock room supplies. The general picture was that of a somewhat withdrawn and quite passive individual who had established a life situation requiring very little interpersonal interaction. The events leading up to his hospitalization will be sketched briefly. Apparently, a group of women working for the same firm decided to use John as the object of a practical joke. This involved pressuring John to approach a particular secretary who was not "in on the joke." After a very long period of time, the group managed to convince John that this girl wanted to meet him. The situation resulted in a very embarrassing experience for John and which evoked a great deal of hostility which John found to be extremely frightening. He rushed back to his stockroom and hid. After the other people were gone, John went out and purchased a bottle of liquor and returned to the stockroom. He was able to recall having felt that he was about to "explode". After a good deal of solitary drinking in the stockroom, John apparently became quite aggressive and began to wreck both the stockroom and other offices in the area.

When brought to the hospital by the authorities he was no longer combative. The patient would stare at people with a very angry expression on his face but was completely mute. This was the patient's condition at the time of the first examination. The angry frown never left his face nor did he ever utter a single word. John was obviously carefully attending to what I was saying and doing. He was able to follow instructions and was able to complete a DAP. The DAP was administered following the standard procedure. The patient was first asked to simply draw a person and then asked to draw a person of the opposite sex to that of the first drawing. The results of this examination are presented in Figure 1 and are labelled *A* for the first drawing and *B* for the second drawing.

The patient was seen again on the following day but no further testing was initiated. During this session, however, John started to speak. He still looked extremely angry and his verbalizations were certainly of a very angry nature. He talked a great deal about people in the hospital attacking him and how he was going to hurt someone, if necessary, to defend himself. He expressed a complicated delusional system involving cooperation among the city's employers to blacklist him. The entire vein of his talk was quite paranoid. He described himself as an individual being persecuted by many people. There were also many references to the fact that he was most likely going to seriously hurt several people but, of course, he would be acting only in self-defense.

Within five days, John's behavior changed dramatically. The angry frown was gone. He appeared to be happy on the ward. The patient would smile and converse comfortably with other patients and with ward attendants. In the second examination, I no longer obtained any expression of paranoid ideation. John gave the picture of being a very agreeable and rather passive individual who only wanted to please everyone and manage to get his old job back. He explained his hospitalization by referring to the drinking episode as indicating that he "can't take liquor." At this time, the second administration of the DAP was accomplished. The results are presented in Figure 1 and are labelled *C* for the 1st drawing done and *D* for the 2nd drawing.

The first DAP protocol will be referred to as *AB* and the second DAP protocol as *CD*. Protocol *AB* can be considered as having been obtained while the patient was in a psychotic state. Protocol *CD* represents his functioning when in remission. Without getting involved in arguments about the significance of bits and pieces of DAP drawings, it should be apparent that *AB* is very different from *CD*. When *AB* was drawn, the patient was quite paranoid. The *AB* drawings reflect this behavioral state quite well. Drawing *A* is a vicious, angry, figure with a great deal of emphasis on hair, teeth, and very paranoid eyes. The female in *B* is a full bodied female with emphasis on the mouth and with a suggestion that she might be attacked or at least be in pain. With the rapid change in personality functioning, being primarily a re-establishment of ego defenses and hence a return to good reality contact, the DAP figures also undergo great change. The male figure (*A* compared to *C*) changes from the hostile and fearsome "cat-man" to a full length profile figure whose general posture seems to emphasize anxiety, insecurity, and dependency. Certainly many clinicians would find many details to support other more elaborate interpretations but, for the purpose of this paper, it is enough to point out that the change from *A* to *C* is quite analagous to the change in behavior from the patient's psychotic state to his "normal" condition. A comparison of the female figures in *B* and *D* is also interesting. When psychotic, John can draw a woman in full figure with a fairly definite feminine shape. When his defenses have been re-established and he is in remission, the female figure changes drastically. The oral emphasis is still there but the sexuality of the figure is greatly reduced. It should be noted that the legs are drawn so as to connect with the upper-part of the body, completely eliminating the pelvic area. Furthermore, in *D* there is no feminine shape. Actually, the figure has very masculine, square shoulders. Again, one could free-associate a great deal to differences between *B* and *D*. For our purposes, the differences generally indicate the sensitivity of the DAP to

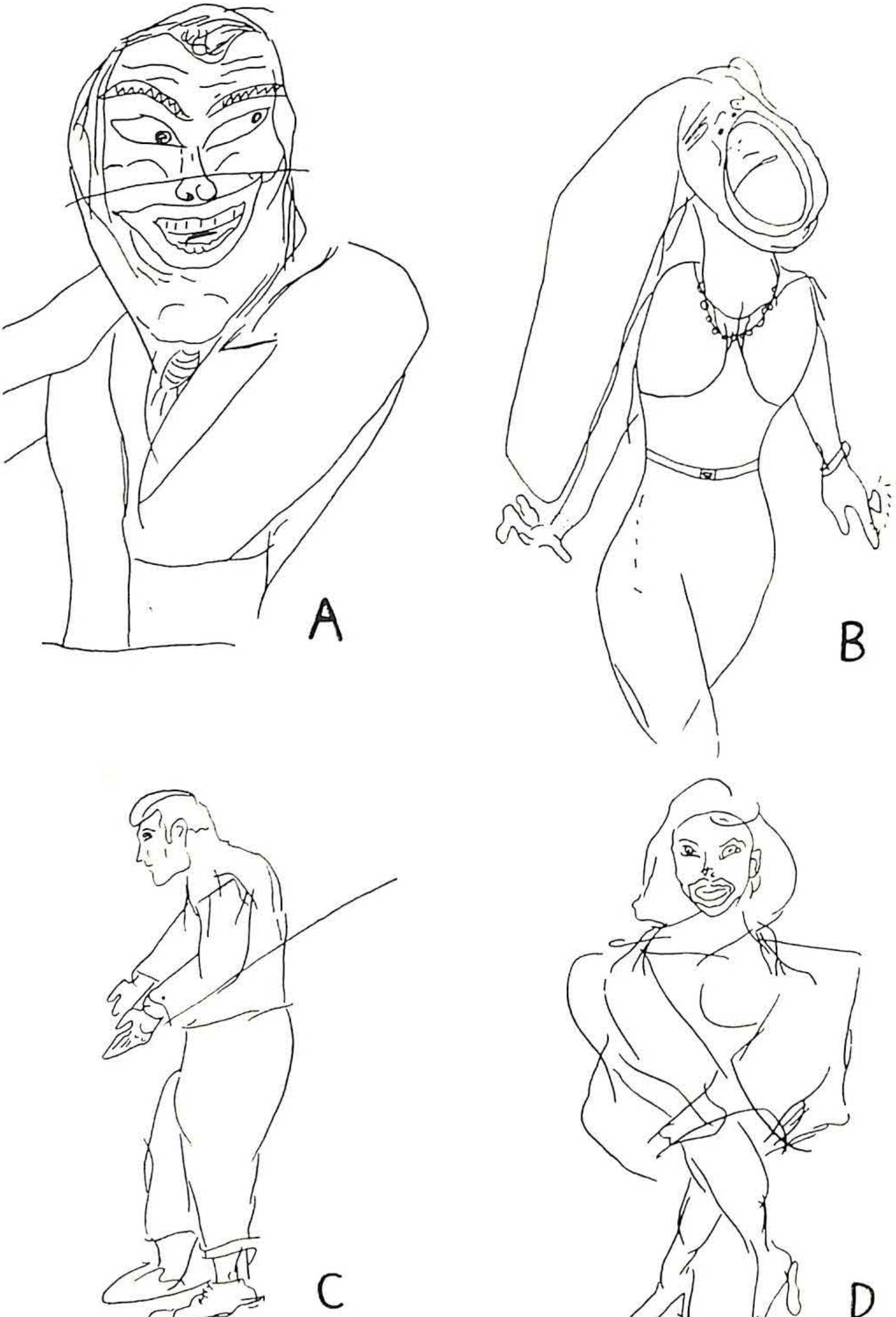

FIG. 1.—The Two DAP Protocols: *AB* - First Administration, *CD* - Second Administration.

the ego-defenses that are in operation. Part of maintaining the patient's normal equilibrium involves a drastic avoidance of sexuality and, hence, the drastic change from *B* to *D*. From the point of view of psychodynamic considerations, drawings *A* and *C* also indicate that the passive-dependent attitude that the patient shows when in remission is a function of the defenses that he uses to control the underlying hostility which expressed itself so clearly in his paranoid state.

In general, this case demonstrates a remarkable sensitivity of the DAP to personality changes. This was seen most clearly in terms of examining the two DAP protocols and comparing them to the changes in the overt behavior of the patient. From the point of view of examining personality processes, it is also quite apparent that the differences between the two DAP protocols are very informative in regard to the operation of this patient's ego-defense mechanisms. Certainly, it is rare for the DAP to give dramatic and striking results. The present data, of course, was influenced by the nature of the patient's illness and by the fortunate coincidence of this particular patient also having a fair degree of artistic ability. It has often been claimed that people with artistic ability tend to give highly stylized DAP protocols which are, therefore, less informative about their basic personality functioning. In this case, however, the patient's artistic skills simply enabled him to express himself in a more informative and dramatic manner.

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Note of Correction for Schwartz, Cohen and Pavlik's "The Effects of Subject-and Experimenter-Induced Defensive Response Sets on Picture-Frustration Test Reactions"

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Summary: The multiple-choice version of the Rosenzweig P-F Study and the use of projection slides in group administration restrict the full diagnostic potential of the instrument. Moreover, these unauthorized modifications represent infringements of copyright. These variants are therefore not available for future use or imitation.

The multiple-choice modification of the Rosenzweig P-F Study by Schwartz, Cohen and Pavlik (1964) contradicts the projective intent of the instrument and encourages an exclusively group-norm orientation which reduces its full diagnostic usefulness. Moreover, the scoring scheme of the P-F Study embraces three types and three directions of aggression which provide in all nine scoring factors that may appear in any one of a multiplicity of psychologically real combinations in a given spontaneous response. These various possibilities cannot be encompassed in a multiple-choice version, and any attempt to do so violates the essence of the technique. Similarly, the use of slides for group administration, as an alternative to the present standard procedure by which each subject writes at his own speed in a separate Examination Blank, constricts the responses non-idiodynamically. It is thus not surprising – to cite but one obvious example – that in the above-mentioned research an abnormally low frequency of intropunitive responses "in the entire subject sample" was found; a result which, in all likelihood, reflects the forced-choice set induced by the multiple-choice form. This opportunity is therefore taken to make clear that since neither the multiple-choice modification nor the projection slides of the Rosenzweig P-F Study employed by Schwartz, et al. was authorized, these uses of the P-F are not further available and cannot be employed by other investigators without copyright infringement.

It may also be noted that the findings of the mentioned research have been largely anticipated. Two similar investigations (Barrett, 1949; Kehew, 1950) are summarized in a published review by Mirmow (1952, p. 210). Though these investigations involved no comparison with the K-scale of the MMPI, they demonstrated that modified set and instructions can produce an increase of socially desirable responses on the P-F Study. There are other related reports in the literature. But even without special experimental conditions subjects functioning at the opinion level can by self-instruction similarly influence the P-F protocol. The possible use of corrective constants for personality tests other than the MMPI, to be derived from independent measures of ego-ideal and cognate attitudes, was suggested even before the MMPI was devised (Rosenzweig, 1934). It was partly on this basis that the F-Test, which addressed itself to eliciting four levels of behavior (the P-F constituting one) to be interrelated in psychodiagnosis, was projected around 1940 and continues to be the ultimate diagnostic goal of P-F and related research on frustration. (See Rosenzweig, 1960, pp. 149-150.)

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Unhealthy Content in the Rorschach Responses of Children and Adolescents

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Summary: This study examines the legitimacy of thinking that certain perceptual contents in the Rorschach are pathognomic indicators. Group Rorschach responses, sociometrics, and scores on a personality measure constituted the primary data. Five data collections are reported, sampling 562 pre- and post-pubescent *Ss* residing in different areas of the country and coming from different socio-economic levels. The findings indicate that most young people in the age range of 11 to 18 years give at least one so-called unhealthy response per ten to the Rorschach, and, where this relative frequency increases it is either of no consequence or probably a healthy sign. Both popular *Ss* and those who score high on personality test dimensions suggestive of adequate to good personal adjustment report notable amounts of content considered pathognomic in the general Rorschach literature.

Over the years, in Rorschach practice, certain perceptual contents have acquired the reputation of being pathognomic or unhealthy in nature. Few clinicians would actually limit their analyses to an enumeration of such contents, yet in point of fact these "warning signs" are difficult to keep in realistic perspective when one is in the early stages of assessing a given protocol. Sometimes a few "decaying leaves" or "blood and guts" responses are enough to set the clinician off on an hypothesis of severe disturbance in his *S*, which may or may not then be corroborated in other test and case history materials. Yet, the question which this research will pose is, how legitimate is it to make this hypothesis for children and adolescents in the first instance? Certainly there is face validity in thinking that such responses are somehow abnormal by definition, but clinicians have been led astray when they followed similar reasonable hypotheses in other projective instruments.

For example, Cox & Sargent (1950) asked experienced clinicians to discriminate between disturbed and stable behavorial patterns, on the basis of TAT stories which had been given by both normal and maladjusted seventh grade boys. The normals gave quite aggressive or hostile stories to the TAT, with much "acting out" potential suggested, whereas the disturbed boys produced less expansive material. As a result, 11 of the 15 normals studied were judged to have disturbed behavioral patterns. In more recent years, Garner & Wenar (1959) found a comparable situation while studying the attitudes of normal and neurotic children towards mothering (Chapter 7). These authors made use of TAT-like phantasy pictures of witches and children in different fairy tale settings, and report the "incongruous finding" that " . . . Neurotic children, who are known to be disturbed, have fewer traumatic witch fantasies [than do the normals]" (Garner & Wenar, 1959, p. 93). They go on to make strained speculations in an attempt to justify what might actually be a normal and straightforward occurrence.

Many of the so-called unhealthy Rorschach contents have been passed by word-of-mouth within the clinical culture. This is at least in part due to the fact that most Rorschach authorities have minimized the importance of content in preference to an emphasis on determinant scoring. Robert Lindner (1952) was one of the first to call attention in print to the role of content, particularly as it related to specific cards. For example, he referred to Card IV as the "suicide card" and suggested that responses to this inkblot like "a decaying tooth" or "a pall of black smoke" had suicidal overtones (Lindner, 1952, p. 83). Roy Schafer has also emphasized the role of certain ominous contents as adjunctive sources of hypotheses concerning the adequacy of an *S*'s adjustment:

> When qualitatively extreme themes prevail, it is strongly suggested that the patient's consciousness is flooded with normally unconscious, threatening thoughts, fantasies, feelings and impulses, and that a psychotic breakdown or primitivization of defense and adaptation has occurred. Then the Rorschach record is likely to be overflowing with gore, devastation, filth, decay, lust, sexual perversity, devouring, mutilation or horrible deformity, or any combination of these. (Schafer, 1954, p. 183).

Evidence has been presented by Louise Bates Ames and her co-workers that the abnormal Rorschach responses of adults are not necessarily unhealthy indicants for children and adolescents. These studies were conducted on primarily upper-middle class children of better than average intelligence. Although there are no findings presented which related Rorschach measures to independent estimates of *S*'s personal adjustment, Ames, Learned, Metraux, & Walker (1952) do make certain generalizations. In their volume of children's Rorschach performance these authors conclude that any of the following (among others) might be suggestive of an atypical or disturbed personal adjustment: more than one inanimate movement per protocol, extremely bizarre responses, and more than one "clob" response per protocol (Ames, *et al.*, 1952, pp. 283-284). Clob responses are those dominated by darkness in perception, "and almost invariably the contents are unpleasant" (Ames, *et al.*, 1952, p. 85). In their later work on adolescents, Ames, Metraux, & Walker (1959, pp. 284-287) re-emphasize that many adult neurotic signs on the Rorschach are typical of young people, but they leave the matter of what precisely might be truly suggestive of atypical adjustment for adolescents open and in doubt.

The formal reason for believing that a certain type of response is unhealthy actually stems from Rorschach's theory of determinant scoring (Rorschach, 1943). Classically summarized, this theory presumed that it was not "what" one saw on the inkblot which was relevant to personality assessment, but rather "how" one saw it. Whether the *S* reports that he sees a "mug of beer" or "mug of root beer" made no difference *per se*, so long as we knew what factors of the blot determined one or another of these percepts. Diverse contents might receive identical scorings, and vice versa. Unhealthy contents have traditionally been tied to the interpretation of certain determinant scorings. Thus, if an *S*'s protocol were flooded with F−, C, and m, the interpretation might well be that he has a poor grasp of reality, is becoming increasingly dominated by emotional impulsivity, and that he could possibly be impelled or driven into some extreme action as a result of this deterioration of controls. Form-level is usually the most vital factor at play in the clinician's analysis, as we can easily see in this quote from Schafer:

> A relatively low extended F% usually indicates more or less failure to take hold of the problem situations represented by the ten Rorschach cards and impose articulated, meaningful structure on them. *Blood, explosion, smoke, dough, mud, water and darkness* are the types of images, and CF and C, C'F and C', *Ch*F and *Ch*, and (C) F the scores that reflect this failure to impose form. . . . As a rule, the more these weakly formed or unformed responses preponderate in the record, the more severe the paralysis, feebleness or overwhelming of ego functions concerned with restraint and modulation of impulse and affect. The patient's emphasis on form usually parallels his emphasis on self-control. (Schafer, 1954, p. 176).

It is the fact that images (blood) and scores (CF) can be so readily combined and referred to mutually, which has made it possible for the clinician to evolve certain rules of thumb as to what constitutes "unhealthy content."

Many clinicians would, of course, take issue with this easy paralleling of content and determinant scoring, and assert that they are not influenced by content until they have fully completed their determinant scoring of a protocol. There has been much debate concerning the proper use of the Rorschach test, as regards the relative merits of content vs. structural scoring approaches. One's position here depends on one's view of the nature of clinical work. Where do clinical hypotheses come from? Are they generated entirely by the language of determinants (M greater than C), or is this merely a shorthand notation of the more fundamental language of content (this *S* sees more humans in life-like action than he sees inanimate or unmoving objects, described through use of color adjectives, etc.) which is the *actual* source of clinical insight? Does the clinician delude himself into thinking that the shorthand generates the message?

There has been a steady development of research evidence in support of the view that content and determinant scorings may be two sides of the same coin. Shatin (1955) examined 39 parallel characteristics (e.g., perceptual distortions and physical aggression) of the Rorschach (structural instrument) and the TAT (content instrument). He found that all but seven of these characteristics correlated significantly when a sample of 90 *Ss* were given both projective tests. Levy (1955) has presented evidence to show that M scores, rather than serving as determinants of H content, actually are "rhetorical embellishments" of H which fail to add materially to the H score as it stands. And as for the importance of F, De Vos (1952) worked out a scoring system which relied on content scorings such as hostility and anxiety, and found that his scale of unpleasant affect correlated .69 with maladjustment. After an extensive examination of his Rorschach protocols, De Vos concluded: "It was found that affective scorings are as valid in differentiating between normal and maladjusted individuals as F+%" (1952, p. 149).

It would seem, therefore, that one can take Rorschach content seriously, as it stands, and devise scoring systems to measure this feature of the protocol as an independent dimension. When this is done, it is not difficult to find scoring reliability (Zubin, Eron, & Sultan, 1956). One is then in a position to relate such measures to independent measures of personality and social adjustment. The present authors decided to follow a program of this sort, and to choose as merely one aspect of group Rorschach protocols, the dimension of "unhealthy content" as defined by various experts such as Schafer, and also from the general and more informal lore of clinical practice. In all, five data collections were made on children (pre-pubescent) and adolescents (post-pubescent) residing in different areas of the country and coming from different socio-economic levels.

METHOD

Subjects

Sample 1: Selected from two public junior high schools in a Western city of 22,000 population (Lewiston, Idaho). Socio-economic background was primarily lower-middle, with a range of upper-lower to upper-middle class. Farming, lumbering, and general labor were the major occupations of the parents of these children. Two classrooms from each of the grade levels seven, eight and nine were randomly chosen for study. A total of 184 Caucasian *Ss* (95 girls, 89 boys) ranging in CA from 11 to 15 years, made up this final sample.

Sample 2: Selected from the public elementary schools of a small Western "university town" of 7,000 population (Pullman, Washington). The economy of the town turns on the state university located there, and consequently a large percentage of these children were the offspring of college personnel, staff and student body. Though a range of socio-economic level existed in this community, it was primarily a middle to upper-middle class town. Two classrooms from each of the grade levels six, seven and eight were randomly chosen for study. A total of 166 Caucasian young people (80 girls, 86 boys) made up the final sample, ranging in CA from 11 to approximately 14 years.

Sample 3: Selected from the student body of two large parochial high schools of a large metropolitan area in the Midwest having a population concentration in excess of two million (St. Louis, Missouri). There was a broad range of occupation in the parental background of these young people, but in general it would be correct to say that they were of primarily lower-middle class status. Four randomly chosen study halls provided 108 Caucasian students (55, girls, 53 boys), ranging in CA from 13 to 18 years.

Sample 4: Comparable to Sample 3, except that these were 51 students attending a single summer high school class in personal typing (26 girls, 25 boys). Thus, though a range in class level and CA existed, all *S*s were found in one study class.

Sample 5: Comparable to Sample 3, except that these 54 *S*s (28 girls 26 boys) all came from two study halls in the same school.

The samples have been numbered in the order of data analysis. The research series, therefore, began in the western United States, and Sample 2 was viewed as a form of cross-validation on Sample 1. Sample 3 was a midwestern follow-up on the earlier studies, and Samples 4 and 5 were attempts to cross-validate the findings of Sample 3. The research as a whole can, therefore, be thought of as involving a Western and Midwestern breakdown, with cross-validations within each of these two major groupings.

Rorschach Measurement

The Harrower Group Rorschach slides (Psych. Corp., 1959) were used, although experimental instructions and procedures were tailored to suit the specific aims of this investigation. Extensive pre-testing of approximately 120 *S*s over the course of data collection established the testing procedures and provided data on the basis of which scoring manuals could be built, although the leads as to what constituted unhealthy content were taken from the literature (ref. introduction). There is a slight discrepancy between the content scoring used in the Western group and the later content scoring of the Midwestern group.

In the Western Samples, each *S* was given a positive incidence on unhealthy content if his protocol contained a response reflecting any of the following: Arguing (incl. Haggling, Taunting, Ridiculing), Blood, Blotch (incl. Mess, Bad), Death (incl. Dead Things, Destruction), Decay (incl. Mold, Rotting), Explosion (incl. Eruption, Rocket), Eyes (alone), Fire, Fighting (incl. Torture, War), Germs (incl. Disease, Dirty), Intestines (incl. Insides, Lungs, etc.), Mask, Monster (incl. Dragon, Scarry Being), Ripping (ed) (incl. Tearing, Pulling, Jagged), Skeleton (incl. Bones), Smoke, Squashed (incl. Smeared, Smashed), and Strange (incl. Weird, Crazy). Subjects were scored for total responses of any sort given to the inkblots (R), and their total unhealthy content score was the percentage of R (decimal removed) falling into one or another of the above categories.

Because psychologists do not agree on the matter of what constitutes an unhealthy response, for the Western Samples, each *S* actually received *eight* unhealthy content scorings. That is, *S* was first given a Total Unhealthy score, which was the % of R falling within any one of the above categories. Then, his % of R was recalculated an additional seven times, leaving out each of the following contents in turn: Explosion, Eyes, Fire, Mask, Monster, Skeleton, and Smoke. Thus, if a reader were to agree with the classification of most of the unhealthy content categories, but would like to discount Eyes or Smoke as in themselves essentially healthy, he could still make use of the results of this study. As a scoring reliability check, 30 *Ss* (15 boys, 15 girls) were randomly selected from the Western group and scored independently for the unhealthy contents given above. Considering only those responses scored by one or the other of two raters, the percentage of agreement was 81 (agreements divided by total comparisons between raters). As a check on the stability of such contents, 28 *Ss* (12 boys and 16 girls) in the Western group were given one week test-retests on the Harrower Slides, and a Pearsonian correlation of .71 ($P<.01$) was found for total unhealthy content.

The Midwestern studies were stimulated by the findings of the Western group, but it was decided that since the Samples would not be too comparable in age, a separate scoring manual should be devised. Sixty *Ss* were administered the inkblots in pretesting, and a new manual was devised under nine major headings. As will be noted, there is considerable overlap between the two approaches, but the Midwestern group has been given a Sex category and some other minor alterations to make it more suitable for the age-level in question. Unhealthy contents in the Midwestern Samples were as follows (example response in parenthesis): Blood or Guts (squashed bug, bloody skin of an animal); Death or Decay (dead limb of a tree, torn dress); Destructive Tools (whip, claws, knife); Disguise (mask, a strange face); Fur (hairy animal, a bearskin rug); General Tension and Turbulence (fighting, haggling); Sex (vagina, penis or related references); Smoke, Cloud, Dough or Mud; and Stereotyped Cultural Fears (devils, haunted house).

Protocols in the Midwestern Samples were given three scorings: 1) total absolute responses disregarding healthy vs. unhealthy (R); 2) % of R falling within one or another of the nine broad unhealthy content scorings; 3) a raw score incidence of unhealthy content responses disregarding the influence of R. Up until this time, the % of R scoring had been selected because it seemed reasonable to consider an *S*'s total output in connection with his Rorschach contents, and there were researches which suggested that this was a more reliable approach than the simple raw incidence scoring system (Altus, 1948; Thompson, 1950). However, the authors decided to score for total unhealthy content both ways and thereby determine empirically if it made a difference. Scoring reliability was accomplished as before, by selecting 10 random protocols and having two judges score them independently. The resultant percentage of agreement was 87. A ten day test-retest using % of R as the score, was done on 13 *Ss* in the Midwestern group; this resulted in a Pearsonian correlation of .98 ($P<.01$).

Personality Measurement

The High School Personality Questionnaire (HSPQ) (Cattell, Beloff, & Coan, 1958) was used to assess personality characteristics. This is a 14 factor test most applicable to the age range of 12 to 16 years, although the authors note that it requires reading knowledge which the average 11 year old possesses. The HSPQ has two forms, A and B, each of which contains 142 items and takes approximately one hour to administer. The test authors recommend that both forms be given and in the Midwestern group this recommendation was followed. However, the Western Samples were administered only the Form A version.

No attempt will be made to define the HSPQ variables, and a general consideration of those factors having relevance to the findings of the present research will be deferred to the Results and Discussion sections. It should be noted that the HSPQ has slightly higher two week retest stability coefficients for the 14 factors (in the .70's) than it has split half consistency coefficients (.40's and .50's) (Cattell *et al.*, 1958, p. 10).

Social Adjustment

To see if a relationship existed between unhealthy Rorschach content and S's social adjustment, a sociometric device was employed in the Western Samples. It was decided that a sociometric device used on the high school students of the Midwest would not be appropriate because these Ss had not had the consistent history of association and stability of group experience found in the elementary and junior high schools of the West.

Each S selected children (either sex) with whom he would "like best to play any of the games that we know" and a second selection of children with whom he would "like best to work or make something—any of the work that we do." Although there were a few additional lines made available, only the first three lines were numbered on the sociometric instrument, and only these three were utilized in determining a child's play and work group choices. A Total popularity sociometrics score which combined the Play and Work group selections was also determined for each S. The group acceptance or popularity score of an S was the percentage of classmates who chose him in one of these first three ranks; i.e., no weight was given to position above the rank of three. Groups of approximately 50 Ss each were selected from the sixth and eighth grades, and administered the sociometric on two occasions with 44 days intervening. The resultant Pearsonian correlations ranged from .83 to .92 ($P<.01$) within either sex, and for both Work and Play groups.

Procedure

All of the testing was done in groups of at least 15 but no more than 40 Ss, with the order of Rorschach, HSPQ and sociometric administration varying across Samples. The HSPQ and sociometric device are rather straightforward, but an explication of the Harrower adaptation is called for. The inkblot slides were projected from a 300 watt projector onto a 50 inches square beaded screen, which had been set up 15 feet away, at the head of the class. Lights were extinguished and shades drawn. All Ss were given a pad of three answer sheets, with places marked for 10 responses on each sheet. They were told that the *E* was interested in what they might see in certain inkblots about to be projected on the screen, and asked to keep two points in mind: that this was not a test with right and wrong answers in the usual sense, and that the entire class would have to go through the inkblots together—one at a time.

Subjects received three trials on the ten inkblots, with an opportunity to make one response per card per trial. Thus, the maximum number of responses which could be given was 30. Responses were written on the answer sheets. Inkblot exposure times were established through pretesting with the groups in question, and they varied slightly over the course of the five data collections. The most common exposure time was 30 seconds, with an additional 30 seconds allowed S between slides, but in Sample 1 Ss were permitted a full minute's exposure on the first trial, and all of the Midwestern Samples were given only 20 seconds between exposures on the second and third test trials. These are actually minor variations for this kind of material. The important aspect of group Rorschach testing is to keep morale and interest as high as possible. For some groups, too long of an exposure or time between trials encourages whispering, etc., and detracts from test rapport. It makes best sense to establish limits according to the demands of the group to be tested.

Subjects were informed that they could use the whole blot or any part of it to see something: "You might see something in *part* of the inkblot but not see something in the *whole* inkblot." The *E* also noted:

"We hope that you can see at least one thing in each blot, but if you don't, that's OK. When you cannot see anything in a blot, just write an X in the space next to the inkblot number." During testing, *E* repeated the following instructions immediately after flashing each card on the first trial, and then stated them randomly on trials two and three: "What might this be, what does it remind you of, what do you think it looks like?"

The sociometric was administered by the classroom teacher rather than *E*, because it seemed to be a natural activity for the teacher to ask such questions. Cooperation was considered excellent over all of the data collections. When an *S* missed the HSPQ or sociometric testing he was picked up either individually or in small groups at a later time. Those *Ss* who were absent on the day of Rorschach testing were simply dropped from the study and though they might have been put through the other instruments along with their classmates, their scores were not included in the statistical analysis.

RESULTS

The first point of interest is to see how many responses *Ss* of this age range can be expected to give in a group Rorschach testing arrangement, and of these, the percentage which fall into the unhealthy category. Table I gives the raw score total of responses (R) and the unhealthy content scores for all samples. An *S*'s unhealthy content score in Table I was the % of R falling within the unhealthy designation, multiplied by 100 to remove the decimal point. Note that there is a fairly uniform tendency across samples, although Sample 5 gave more R and more unhealthy content, and Sample 1 gave relatively less unhealthy content than any of the others. It would not be surprising to find between 15 and 20 percent of a young person's Rorschach protocol consisting of the designated unhealthy contents. Indeed, a liberal reading of Table I would suggest that most young people of this age range (approximately 75%) give one or more unhealthy responses for every ten responses given to the inkblots.

The relationship between unhealthy content and personality measures will be taken up in the sampling sequence. Considering the Western Samples first, Table II gives the Pearsonian correlations between unhealthy content and four HSPQ variables: Dominance (Factor E), Super-Ego Strength (G), Individualism (J), and Esthetically Sensitive (I). These were the only HSPQ variables to reach significance in either of the Western samples. Note that Table II contains the Total (To.) Unhealthy scoring which is correlated against the HSPQ variables, plus seven subscores representing this total *minus* certain contents (Explosion, Clouds, etc). It also contains an R scoring correlated against the HSPQ variables.

Although a few trends are suggested across Western samples, there are no definite cross-validations to cite in Table II. Turning to the sociometrics, neither group of girls in the West reflected a significant relation between Rorschach content and sociometric popularity. The boys of Sample 1 did

TABLE I—Total Rorschach Responses and Percent-of-R Unhealthy Content Scores for All Samples

Sample	Total Responses (R)						Unhealthy Content (% of R)					
	Boys		Girls		Total		Boys		Girls		Total	
	Mean	Sigma	Mean	Sigma	Mean	Sigma	Mean	Sigma	Mean	Sigma	Mean	Sigma
1.	25.11	4.59	26.06	4.75	25.60	4.69	16.98	9.77	17.43	10.10	17.21	9.92
2.	24.50	5.58	25.80	3.96	25.10	4.90	23.60	11.86	18.00	10.24	20.90	11.42
3.	23.36	6.83	24.65	4.86	24.05	5.90	17.84	9.68	20.41	9.28	19.22	9.55
4.	25.36	3.39	27.07	2.79	26.33	3.23	21.76	13.45	17.26	8.31	19.47	11.35
5.	28.25	2.16	28.27	2.30	28.26	2.22	23.50	10.05	20.28	10.32	21.92	10.31

have significant positive Pearsonian correlations between Play Group selections and the Rorschach categories of Total Unhealthy *minus* Eyes (.21), *minus* Mask (.22), and *minus* Smoke (.21) ($P < .05$). There were no significant correlations for Sample 1 boys between Rorschach content and Work Group popularity, but Total Unhealthy *minus* Mask correlated .22 with Total Popularity ($P < .05$). These were certainly interesting developments, particularly since sociometric popularity has often been taken as a measure of "good" or healthy adjustment among groups of children. None of these correlations held for Sample 2 boys, where there were no significant findings at all on the sociometric measures.

It will be recalled that Samples 3, 4, and 5 each had three forms of Rorschach scorings per *S*: R, % of R unhealthy, and a raw score incidence of unhealthy content *per se*. In this way, the method of considering unhealthy responses as such could be compared with the alternative method of weighting unhealthy responses according to the general length of the Rorschach protocol. Actually, it was found that Pearsonian correlations between % of R unhealthy content and raw score incidence of unhealthy content ranged from .91 to .98 ($P < .01$) across Midwestern samples, both as a whole, and when broken down according to sex. Further, correlations run against HSPQ variables using both these forms of assessing unhealthy content failed to alter the general findings in any way. Table III, therefore, contains only the R (total responses to Rorschach) and % of R unhealthy content scorings, in line with Table II. Table III gives the Pearsonian correlations between Rorschach measures and 10 HSPQ variables which were found to correlate in some way with unhealthy content in either the Western or Midwestern groups. This permits the reader to compare the Table III findings with those in Table II.

Since there is often speculation on

TABLE III—Pearsonian Correlations Between Rorschach Measures and Certain HSPQ Variables for Samples 3, 4, and 5

Rorschach Mea.	Cyclothymia			Intelligence			Ego-Strength			Excitability			Dominance		
By Sample	Boy	Girl	N	Boy	Girl	N	Boy	Girl	N	Boy	Girl	N	Boy	Girl	N
Sample 3 R:	.03	.29*	.14	.09	—.11	.03	.20	.52**	.27*	—.23	—.16	—.20	.07	.14	.07
% of R:	—.06	.40**	.17	—.34*	.12	—.10	.16	.56**	.28**	—.44*	—.12	—.29**	—.06	—.06	—.09
Sample 4 R:	.01	.05	.11	.05	.14	.11	.21	.17	.14	.08	.11	.08	.13	.28	.13
% of R:	—.21	.01	—.18	—.47*	.01	—.22	—.13	.03	—.03	.38*	.01	.24	.20	.05	.17
Sample 5 R:	.22	.39**	.30	—.15	.08	—.03	.09	.11	.09	.04	—.08	—.08	.39*	.28	.34*
% of R:	.29	—.26	.03	.17	.06	.12	.05	.04	.06	—.10	.12	.01	.08	.17	.14
	Super-Ego Strength			Adventurous			Esth. Sensitive			Individualistic			Will Power		
	Boy	Girl	N	Boy	Girl	N	Boy	Girl	N	Boy	Girl	N	Boy	Girl	N
Sample 3 R:	.48**	.02	.27**	.01	.52**	.20	—.05	—.23	—.01	.26	—.48**	.00	.28*	—.15	.13
% of R:	.50**	.30	.40**	.26	.38*	.21	.26	—.18	.10	.01	.16	.09	.61**	.20	.42**
Sample 4 R:	.19	.22	.21	.08	.24	.15	—.11	.14	.12	—.04	—.25	—.12	—.06	—.27	.12
% of R:	—.25	.08	—.14	—.21	.26	—.05	.31	—.37*	—.04	.34	—.15	.19	—.24	—.21	—.23
Sample 5 R:	—.23	—.17	—.20	.03	.15	.08	—.02	.11	.04	—.20	.14	—.01	.03	.13	.08
% of R:	—.05	—.28	—.16	—.10	.01	—.02	.20	.13	.02	.16	.24	.16	—.09	—.15	.12

*Significant at .05 level.
**Significant at .01 level.

the possibility of a curvilinearity existing between such Rorschach and HSPQ variables as under study, the authors selected several variable combinations from Sample 3 and graphed them. All of the significant correlations of Table III were graphed, plus several other randomly selected HSPQ variables. The raw score incidence of unhealthy content was used as the Rorschach measure, graphed against the raw score incidence of a given HSPQ variable. Where visual analysis of the graph was not sufficient to determine the fact of linearity, an Eta was calculated and tested for significance. Although slight trends to curvilinearity were noted, not one of the variables graphed reflected a significant Eta.

CONCLUSIONS AND DISCUSSION

There seem to be three major conclusions to be drawn from the present research findings. First of all, it is obvious that even though he might be able to score unhealthy content reliably, the clinician has a difficult task interpreting such material due to the potpourri of data included under this designation. One might even conclude that there are no interpretative generalizations worth making. Secondly, there are influences to be seen in the data stemming from sex and social-class differences. Finally, and most importantly, there is very little evidence that unhealthy contents are in the least unhealthy. On the contrary, the findings of this research would imply that most young people give at least one so-called unhealthy response per ten to the Rorschach, and, where this relative frequency increases it is either of no consequence or probably a rather healthy sign. That is, the weight of the evidence does *not* in itself support the view that those young people reporting increasing amounts of unhealthy content are in any way maladjusted.

It is true that in Sample 2, those boys who saw greater percentages of unhealthy content were the ones who scored low on the factor of super-ego strength. Cattell's definition would suggest that such children lack maturity and responsibilty, and might well tend to delinquency (Cattell, *et al.*, 1958, p. 3). Yet, the boys of Sample 1 were found to score in the directly opposite direction; in this case, it was the conscientious, attentive and persevering child who reported unhealthy content. A comparable situation was found for excitability in the Midwestern group. Sample 3 boys of a presumably self-sufficient, placid, deliberate personality tendency gave unhealthy Rorschach content. In Sample 4, it was the demanding, overactive, and nervous boy who proffered unhealthy contents (Cattell, *et al.*, 1958, p. 28). Samples 3 and 4 were consistent in finding that unhealthy content was negatively correlated with intelligence, which in itself might be taken by some to indicate a form of maladjustment assuming *S* was lacking in IQ. This would essentially complete the review of evidence favoring an unhealthy interpretation of the Rorschach content under study.

Over against these highly equivocal and debatable findings, we have several suggestions in the data of Tables II and III that the Rorschach contents under study are tied to good personal adjustment. The positive relationship with super-ego strength of unhealthy content for Sample 1 boys was cross-validated with an r of .50 for the boys of Sample 3. Even more significant, the boys of Sample 3 have an unusually high correlation reflected for data of this nature between will power and unhealthy content (r of .61). Cattell defines his will power factor (Q_3) as follows:

> The loaded response items show the child high in Q_3 as self-controlled, striving to accept approved ethical standards, ambitious to do well, considerate of others, foresighted, disposed to reduce and control expressions of emotion, and conscientious. It correlates substantially with self-sentiment, i.e., the integration of drives in the sentiment directed to maintaining an adequate self concept (Cattell, *et al.*, 1958 p. 37).

There is good reason to suspect that unhealthy content in Sample 1 tapped a form of leadership potential. Thus, for both sexes, unhealthy content was proffered by the individualistic, tough, self-sufficient, independent and attention-getting child who seeks the leader role (Cattell, *et al.*, 1958, p. 29 and p. 34). What is more, among the boys of Sample 1, there seems to have been some success in the matter because certain forms of unhealthy content were found to correlate with Play and Total sociometric popularity — one widely used means of identifying group leaders. This toughness and self-sufficiency is no doubt reflected in the factor of esthetic sensitivity, which was found to cross-validate rather nicely for the girls across Samples 1, 2, and 4. To score high on esthetic sensitivity would suggest dependence upon others, gentleness, intuitiveness and anxious concern about the self. It would also suggest an imaginative inner life and conversational pattern. To score low on esthetic sensitivity suggests self-reliance, toughness, reality-oriented practicality and a tendency for seeking logical evidence before drawing conclusions (Cattell, *et al.*, 1958, p. 33). The findings suggest that it was the latter type of girl who reported unhealthy content.

This is not to imply that a girl had to lack interpersonal facility in order to report unhealthy content. Though the findings on the Western sociometrics did not apply for the girls, there was evidence in the Midwestern group that interpersonal dimensions were importantly tied to the Rorschach data.

Thus, in Sample 4, it was the cyclothymic or socially responsive, trustful, warm-hearted and easy-going type of girl who also reported unhealthy content (Cattell, *et al.*, 1958, p. 25). The Sample 3 girl reporting unhealthy content was equally out-going, but in a more adventurous or extraverted sense of the word. Terms used to describe this form of interpersonal geniality would include active, likes meeting people, frivolous, and carefree (Cattell, *et al.*, 1958, p. 32).

As a final bit of evidence favoring the view that unhealthy content may be in fact healthy, we would do well to consider Cattell's ego-strength or "general neuroticism" factor (C). To score high on this dimension suggests emotional maturity and realistic adjustment to one's environment. To score low on this dimension suggests emotional immaturity and instability, the tendency to evade responsibility, and a proneness to worry (Cattell, *et al.*, 1958, p. 27). The ego-strength variable entered into the significant findings only once, in Sample 3, at which time it was found to correlate *positively* with unhealthy content.

Note that some of the findings in Table III on R equal and surpass those of % of R for the Midwestern group. Since there was considerable relationship between the raw score incidence of unhealthy content and the % of R measure, one might well conclude that an indirect artifact was in operation. That is, *S*s who gave many responses also gave more unhealthy content and this is the reason for the findings on % of R rather than any independent relationship between the unhealthy content measure and the HSPQ variable. Sample 3 findings are the only ones which are subject to this criticism, where the variables of ego-strength and adventurous are suspect for the girls, and super-ego strength is suspect for the boys. Correlations run between R and % of R unhealthy content for Sample 3 were as follows: boys, .36 ($P < .01$); girls, .16 (not sign.); total N, .17 (not sign.). It would, therefore, appear that this criticism must be entertained for the boys of Sample 3. At the same time, it should be noted that the Pearsonian correlation between R and will power (.28) increased dramatically for the boys of Sample 3 (to .61) when % of R unhealthy contents were taken into consideration. This argues against an easy dismissal of Sample 3 findings on the basis of spurious correlation for the boys. It is interesting to note that the personality dimensions which correlate most highly with R are consistent with the picture of an *S* who would do his best to meet *E's* instructions and give many responses to the Rorschach. Thus, R correlated highly with dimensions suggesting that *S* assumes responsibility (ego-strength, will power) and feels constrained to do his best to meet standards (superego strength) as well as respond to the general demands of a social situation (cyclothymia and adventurous).

There is still the question of how to properly evaluate the kind of content studied in the present line of research. Before answering, a point must be made. We must keep in mind that most of the work on free-response phantasy contents is yet to be done. Although the Rorschach test is one of the oldest clinical tests, and much work has been done with it as a structural instrument, actually few clinicians have been interested in systematically categorizing the myriad "kinds" of contents *Ss* report seeing. Such content analyses are wide open; there are innumerable ways of handling the data, but we go on acting as if there were only one correct way. No doubt, much of the reticence to take on such a dimensional attack stems from the fact that research findings are likely to be dismally unrewarding when considered by themselves. A typical attitude is expressed by Holzman, Thorpe, Swartz, & Herron, who correlated their inkblot test with one of the Cattell children's tests:

> Only one of the correlations between the 15 inkblot scores and the personality scales proved significantly greater than zero at the .001 level, a correlation of —.25 between Human and Cattell's Neuroticism (Factor 3). Although this relationship is at least in the expected direction, the general lack of any relationship between the two sets of scores should be sufficient to discourage other investigators from trying the same thing. (Holtzman, *et al.*, 1961, p. 180).

We might well ponder whether there were any .05 or .01 findings, but the important point is that only if a clinician were interested in *nothing but* immediate, practical prediction—strictly and narrowly, the applied goal—could he become this discouraged. It is relevant to note that Rychlak & Guinouard had earlier found a comparable relationship of $-.21$ ($P<.01$) for 166 children between human content and Cattell's neuroticism factor. The clinician with a fundamental interest in the projective phantasy of people does not so easily dismiss humble findings, which gain with each cross-validation the stature they lacked when standing alone. The proper attitude would seem to be that we have identified a valid dimension here (human content), in an instrument which has had no little difficulty demonstrating validity. Going beyond the instrument, we can now also make a comment about the projective phantasy of young people. For example, the finding that human Rorschach content is more prevalent among popular children may contrast with the finding that human "Affiliative" dream themes are more prevalent among *unpopular* children (Rychlak, 1960). The next point is, are there other ways in which Rorschach data may be construed to add to the validity of the test, and our knowledge of projective phantasy? By altering the method of approach, in time, with more work and less discouragement, substantial correlations may be in the offing.

In this spirit, and backing away from the specific values of correlation for now, the authors do have a position on the matter of so-called unhealthy content. Doubtless, there are several dimensions involved in the Rorschach unhealthy content data, some of which could be identified and refined through factor analysis. However, there is also enough generality across samples and from earlier work (Rychlak & Guinouard, 1960, p. 329) to suggest the following general picture. This picture is sketched in as a form of hypothetical statement, one which might well stimulate others to test its validity. Young people reporting large percentages of unhealthy Rorschach content are prone to be rather practical, matter-of-fact individuals who are likely to be active and call a spade a spade. This is sometimes tied to and possibly the result of relatively lesser intellectual ability, but not in every case, and especially not so among the younger children. This personality pattern is sometimes tied to masculinity, and no doubt it is a function of the fact that boys are more likely than girls to be alert to and verbalize negatively tinged perceptions in a direct fashion. It is sometimes a matter of coming from a lower socio-economic background, where creativity and cultivated restraint are not as likely to be part of the group mores. Often, these *Ss* are rather open, honest, sincere and straightforward. In the lower socio-economic classes they can make good friends, particularly in non-academic settings, where they might exert an influence on play behavior. If at times more blunt than imaginative, and more colorless than creative, they are at least often rewarded in the sense that their adjustment is stable. They follow the rules, and might well interpret standards in the same literal way in which they interpret their own perceptual environment. One cannot expect such a child—even if his IQ exceeds 120—to do anything very unique in the unstructured Rorschach testing situation. Inkblots are, after all, messes and blotches and blobs of ink. This connotation in itself sets a tone which is not hard to carry over into the so-called unhealthy contents. "Seeing" blood and guts and splotches and drippings is one thing, voicing them is another. Some children do voice these perceptual contents, once they have taken the personality-determined set already alluded to.

How is it, then, that the contents under study have been termed unhealthy in the first place? There are several possible explanations. The most obvious is that clinicians have been led astray by the simple face validity of unhealthy contents. This is an incomplete and over-simplified explanation which is not very satisfying. A more plausible idea would be that people who develop serious adjustment problems—to a highly neurotic or psychotic degree—have an "illness personality" not unlike certain aspects of the one hypothesized above. Since most of the early Rorschach work was done on neurotic and psychotic adults, it may be that a *characteristic* of disturbed adults was taken as the fact of disturbance. This would be like concluding that all physically ill people have lethargic personalities, because this is the way they all behave while sick. There may be a generality in personality among emotionally disturbed *Ss*, but this common characteristic has no relevance to illness as such.

An even more plausible explanation of how such content gained a reputation for being "sick" or unhealthy has to do with the nature of the individual testing situation and the theory of projection advocated by the early Rorschach users. As we have already reviewed it in the introduction to this paper, the classical theory has always been: "it is not *what* you see in the inkblot configuration which is primary in personality assessment, but rather *how* you perceptually respond to the configuration of the inkblot." The authors have assumed that clinicians often delude themselves into thinking that their shorthand notations of structural determinants generate the clinical insight, when in fact it is the content of *S's* perception which does so. We have, therefore, set aside for a time the "how *S* sees" theory in favor of the "what *S* sees" theory. However, to better understand the etiology of so-called unhealthy content, it now seems propitious to add a revised "how" dimension to the content approach. It is important, because it will suggest a second way in which the clinician may be misled.

The authors would contend that there is a relevant form of "how" in Rorschach testing besides the traditional structural approach, and this is the "how *S expresses* a given perceptual content." The expressive factor is not perceptual in nature, but rather it is an aspect of communication in the testing situation which has long been noted but never formalized. By taking it into consideration we can explain how it is that certain Rorschach contents have been labeled unhealthy.

The clinician has, in individual administration, witnessed a highly disturbed *S* describe some perceptual content while responding with great and/or inappropriate affect. If *S* sees blood as *really* blood on the blot, and, therefore, winces his way through the description, it is the wincing and not the content of blood which is the fact of importance. A humorless, dispassionate description of rotting, moulding intestines, or rumbling storm clouds, etc. might also communicate a certain emotional inappropriateness in and of itself, quite apart from the content being described. The clinician, although trained to be alert to the affectual display in the testing situation, has somehow confounded a test variable with a communication variable. He has fixed his attention on the *S*'s percept and neglected to label the accompanying affect in some meaningful way as independent of the percept. In the usual clinical staffing, he is likely to cite the perceptual content and express a client's affect indirectly, through a kind of informal role-playing. The clinician then assumes that in the future, such and such a Rorschach percept will accompany such and such an emotional affect and illness. This would appear to be in error, but in the meantime another Rorschach content or percept has gained the reputation of being unhealthy. Like most reputations, it involves only half-truths and quite possibly—if the present research findings are correct—some very serious inaccuracies.

For the present, and until more *S*s including adults can be studied, it would seem most appropriate to label the Rorschach contents of this study as "aesthetically unpleasant" and pedestrian, rather than unhealthy. Children and adolescents who report increasing amounts of aesthetically unpleasant and pedestrian Rorschach content are in the main entirely normal and well-adjusted.

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A Sullivanian Approach to the Problem of Reading Disability: Theoretical Considerations and Empirical Data

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Summary: Since reading disabilities resemble operationally hysterical disorders, the applicability of some of Sullivan's (1947, 1956) conceptions about hysteria in the understanding of this symptom was explored. To this end a measure was designed to assess the degree to which children are sensitive and selectively attentive to hypocritical, insincere, and plain "silly" aspects of the world around them and/or their readiness to understand the sincere precepts of their culture. The instrument was essentially a modification and extension of the Verbal Absurdities items and the Proverb items of the Stanford-Binet Test (Terman & Merrill, 1960). If Sullivan's notions were applicable, then youngsters with reading disabilities should do better than their adequately reading control subjects on the Absurdity items; the reverse relationship was expected on the Proverbs items. Twenty children with marked reading retardation and a matched control group of equal size and reading at grade level expectancy served as research populations. All measures calculated rendered results supporting the hypotheses advanced at better than the .05 level of confidence. The implications of these findings for the theoretical understanding of the reading disability symptom from a Sullivanian vantage point are discussed.

This paper and the research to be reported have a dual purpose: to examine a clinically identifiable psychological malfunction from a theoretical point of view advanced by Sullivan (1947, 1956) and to investigate the adequacy of this frame of reference in relation to empirically derived data. The phenomenon to be examined in this fashion is the apparent inability of some youngsters to learn how to read, usually referred to as "reading disability," despite their adequate intellectual armamentarium and their exposure to instructional facilities.

Conscious of their mandated responsibility to help growing individuals acquire skills essential for life in an ever-increasingly complex industrial society the high incidence of this disability has caused professional educators considerable concern (Roswell & Natchez, 1964); and moved by theoretical and practical interests, other professionals have also busied themselves with the phenomenon of reading disability. Therefore, investigations have ranged from educational psychologists' attempts to describe and catalogue types of reading errors and difficulties encountered in the school work of children (Roswell, 1954), through efforts by clinical psychologists to isolate personality variables presumably associated with reading disabilities (Natchez, 1959), to theoretical formulations advanced in this area by psychoanalytically oriented authors (Blanchard, 1946; Ephron, 1953; Pearson, 1954). Unfortunately, however, the systematic theoretical understanding of this malfunction has advanced little, even though there is undeniable evidence that many youngsters are "cured" of this difficulty by various methods advocated and employed by practitioners who adhere to different theoretical persuasions and therefore draw in their work with reading disability youngsters on their favorite psychological and educational concepts.

Looked upon in strictly descriptive terms, children exhibiting reading difficulties (exempting those with demonstrable organic impairments) manifest behavior highly reminiscent of what is usually referred to in the psychiatric and psychological literature as hysterical. There is an apparent non-utilization of their "independent ego-apparatuses," to borrow a term from contemporary ego psychologists (Rapaport, 1951). In classical psychoanalytic terms (Breuer & Freud, 1957; Freud, 1905) hysterical symptoms in general and the potentially hysterical symptom of reading disability in particular are traced to unresolved or inadequately sublimated Oedipal constellations. This formulation led to thoughts which link voyerism and issues in learning how to read (Fenichel, 1945). While such orthodox psychoanalytic hypotheses represent highly interesting speculations, they do not lend themselves readily to the development of operational criteria and therefore defy systematic empirical validation.

Sullivan's (1956) discussion of the hysterical phenomenon, unencumbered by libido theory, however, ascribed to it well-defined operations which make the investigation of his theoretical position more feasible. As is well known, the hysterical phenomenon represented to Sullivan an interpersonal operation prominently employed by what he called "self-absorbed" individuals. Sullivan commented: "The disturbance in this region manifests itself, as I have already suggested, in the unimportance of other people to him; in a very simple sense, the hysteric is self-absorbed (p. 211)." This self-absorbed quality was said to reflect itself in the hysteric's "deep contempt for other people (p. 209)" and his view of them as "comparatively shadowy figures that move around . . . as audience for his own performance (p. 209)." Sullivan's general discussion of the syndrome portrays an exploitive orientation, simulated interest rather than genuine concern with the welfare of others, and a generalized disregard for people as if they really did not matter.

In addition to these descriptive characterological outlines, Sullivan also asserted that the dynamic background of hysterics always included a significant person from whom the patient had learned such disregard for others — i.e., another hysteric. Specifically he said:

> In the case of the hysteric, one usually finds, . . . a self-absorbed parent or some other highly significant figure who regards the child as something of a plaything — a decoration of the parent's personality—rather than a growing personality (p. 211).

Obviously, what seemed to Sullivan most striking was the high degree of insincerity, exploitativeness, dishonesty, and outright hypocrisy[1] in both, the hysteric's personality and in his background. He consequently felt free to suggest that "hysteria comes much closer to being simple contagion than most of the other distortions in living (p. 212)."

But if hysteria is truly a way of relating characterized by hypocritical exploitation and disrespect carried out by self-absorbed individuals: and if it is an orientation "taught by rote and example (p. 212)," then it would be reasonable to expect that children who exhibit hysterical symptomatology will be youngsters who are keenly attuned to such dishonesty, hypocrisy, and insincerity — for obviously one cannot learn by rote that which is neither perceived nor prehended[2]. Furthermore, if reading disabilities were indeed hysterical phenomena, then – accepting this frame of reference – it would be reasonable to expect that children manifesting such a symptom will be quite sensitive to dishonesties, inconsistencies, and the contradictions they encounter. Conversely, children free from such hysterical symptoms should exhibit less focused attentiveness to hypocritical dishonesty and their focus of attention may be expected to be distributed more evenly on varying and different aspects of their environing reality.

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[1] The attribute "hypocritical" was also prominently employed by Sullivan (1956) when he discussed obsessional disorders. However, the type of hypocrisy he described in connection with obsessional states differs significantly from the hypocrisy he implied in his discussion of hysteria. The term as it is used here denotes silly and feigned involvement and the pretense of interest and concern, *i.e.*, the type of hypocrisy Sullivan suggested as operative in the hysterical constellation.

[2] For Sullivan (1947) the terms "perceiving" and "prehending" had very specific meanings. He commented: "To prehend is to have potential information or misinformation about something; to perceive is to have information or misinformation in or readily accessible to awareness (p.39n)."

With these considerations in mind we advanced two hypotheses: (1) that youngsters with reading disabilities will do better when asked to point out what was hypocritical, dishonest, ridiculous, and insincere in given situations than those of their matched peers who did not show this particular symptom; and (2) that the reverse would be true when such groups were asked to examine and note what was meaningful, sensible, and genuinely insightful in other situations – on such tasks we looked for children reading on their expected grade level to perform better than others who read on a level well below what could be expected of them in view of their chronological age and their I.Q.

METHODS AND PROCEDURES

The instrument. In order to investigate these hypotheses we constructed a measuring device borrowing items from the Stanford-Binet Test (Terman & Merrill, 1960). We culled from it and somewhat modified[3] those items referred to as "Verbal Absurdities" and constructed and added similar items so that we wound up with a series of ten situations in which some insincerity, dishonesty, or plain "silly" behavior was presented. From the same test we also borrowed and modified somewhat the "proverbs" items, adding to them other commonly used precepts expressed in metaphors until we had once again ten such items. Ability to discern what was "silly" in the former situations was to serve as an index of the child's sensitivity to and perceptiveness of insincerity, falsehood, and hypocrisy in the world around him; his ability to gather the meaning of proverbs was taken as a measure of the child's capacity to be aware of the nonexploitive, honest, and sincere precepts of his environs. Finally, to obscure our intent we added ten items depicting situations which did not demand the recognition of something "silly" or some "deeper" meanings, the child being simply asked to tell what is happening. These

TABLE I—Test Items

1. (P) It is best to leave a sleeping beast alone.
2. (A) A man dug a hole to bury some treasure but didn't know what to do with the dirt; so his friend suggested that he dig a hole big enough to hold both the dirt and the treasure.
3. (A) One day we saw several icebergs that had been entirely melted by the warmth of the Gulf Stream.
4. (P) Do not put all your eggs into one basket.
5. (N) Mary gave Tom a cup of tea to drink that was not very warm, so he poured it back into the pot and reheated it.
6. (P) You never miss the water until the well suddenly goes dry.
7. (N) We decided to wear our sweaters on the hike because the weather had turned cold.
8. (P) A bird that you are holding in your hand is worth two that are sitting in a bush far away from you.
9. (A) John and Steve rode up the elevator to the 56th floor of a building and went to the window so that they could look down on the tallest building in the world next door.
10. (P) You should never judge a book by the cover it is wrapped in.
11. (A) Two boys went skindiving and one got lost. It was so dark under the

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[3] These modifications were occasioned by the observation that on a pilot study most of our subjects who uniformly came from a socially disadvantaged group were incapable of understanding the language employed in Terman and Merrill's test items.

water that the other boy had to light a match to fiind his way back.

12. (N) John's mother sent him to the store to pick up some groceries she had bought earlier.
13. (P) A person who does very poor work often quarrels with his tools.
14. (N) The best time of year for picking apples is the fall when they are ripe.
15. (A) In the year 1963 less people got married than in any other year.[a]
16. (A) Ted tried to lift a 100 pound weight but it was too heavy for him, so he tossed it to his friend Jerry and told him to lift it.
17. (N) This is the time of the year when the squirrels start storing food and nuts for the long winter months.
18. (P) The mouse that has only one hole is very easily caught.
19. (N) When a whistle or a siren blows in the middle of the day, it usually means that it is 12 o'clock noon.
20. (A) When some students went to the museum last year they saw a skull of Christopher Columbus when he was 10 years old.
21. (A) The judge passed sentence on the criminal saying, "You are going to be hanged for your crime and let that be a lesson to you not to do it next time."
22. (N) At home we always use napkins at the table so we won't soil our clothes when we are eating.
23. (A) A man went to the post office and asked for a letter that was waiting for him. When the postmaster asked him for his name, he said, "It's on the letter."
24. (N) If I have four apples and I want to divide them equally between a friend and myself, he should get two.
25. (N) Pots and pans look neat and clean when washed and hung on the kitchen wall.
26. (A) Whenever there is a train wreck, the last car always suffers the most damage so they decided it was best to take off the last car before the train starts.
27. (P) Too many cooks working on the same dinner will spoil its taste.
28. (N) The rug on the floor was thick and fluffy and helped keep the room cozy in the winter.
29. (P) An empty barrel always makes more noise than a full one.
30. (P) Many things that are true are said as a joke.

thirty items were read to each of the children examined in individual testing sessions and their responses were recorded verbatim. The actual testing was carried out by only one of the present investigators (M.E.P.).

The scoring. In order to achieve maximal gradation and differentiation it was decided to employ scoring procedures suggested by Wechsler (1958) when he dealt with Similarities items on his test. Thus, on each of the Proverbs items and on each of the Absurdities items a child could achieve a score of 2 or of 1 or of 0. On the Proverbs items a score of 2 was given when the child succeeded in offering a valid generalization indicating that he had grasped the meaning of the precept implied; a score of 1 was given when the child indicated that he grasped the concrete sense of the saying by restating the proposition in other though concrete terms; no point value was scored when the child failed to see any meaning in the statement or simply repeated the sentence in the form in which it was presented to him. To illustrate: The response to Item 1, "Why look for trouble?" was scored 2 points; the response "If you see a mean dog sleeping in the sun I'd just walk the other way," was credited with 1 point; "It's just the right thing to do" received no credit. Similarly on Item 8, "You're sure of what you got" was deemed worth 2 points; "If you like to have a bird at home even a whole lot of them in the park don't do you no good" received 1 point; "I'd never hold a bird in my hand, they don't like it" was given a value of 0.

On the Absurdities items a similar procedure was employed. A point value of 2 was given whenever the child indicated clearly that he saw the impossibility, silliness, or hypocrisy implied in the situation. (This included all *Plus* illustrations offered by Terman and Merrill (1960) for items borrowed from their test.) A point value of 1 was scored when the child detected some impossible aspect in the item but failed to see this starkly or tried to explain somehow what could be done to make this situation more reasonable. Again, irrelevant statements, mere repetition of the test item or inability to respond resulted in 0 scores. For example: On Item 2, "He cannot put more into the whole than he took out – it just can't be done" earned 2 points; "He'd be silly – it would leave a little hill and people would know where the treasure was – unless he planted grass on top" received a score of 1; "He should keep the treasure in his house and watch it" was given no credit. Or on Item 11, "He can't light a match in water, wet matches don't light" received 2 points; "Skin divers have flash lights because you need lots of light under water – a match does not give enough light – I have seen this on T.V." was credited with one point; "He should have helped the other boy – otherwise he'll die" was given no credit.

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[a] Data collection took place well before the end of 1963.

These general guide lines for scoring enabled one of the investigators (M.E.P.) to score the records without many difficulties. To avoid the danger of her scoring in biased fashion about half of the records collected were also scored by independent judges who did not know whether a particular record to be rated came from a child with a reading disability or a youngster free of such a difficulty. Furthermore, some responses which seemed difficult to score were submitted to a group of judges whose concensus determined the score to be employed. Since the agreement between the scoring investigator and the judges and the agreement among the judges was obvious and extremely high the usual indices describing interjudge scoring reliability were not calculated. (In a subsequent study (Banks, 1964) the adequacy of the scoring procedure and guide lines described here was substantially supported.)

On the basis of such scoring each subject achieved what for lack of any better term may be called a "Sensitivity to Absurdity Score" (the sum of points earned on the Absurdities items) and an "Appreciation of Common Precepts Score" (the sum of points earned on the Proverbs items).

The population. We studied two groups of youngsters. One group consisted of twenty children of markedly retarded reading level, their retardation ranging from one and one-half years to three and one-half years below grade expectancy as measured by achievement tests used by the school system in city-wide evaluation procedures. The group included ten boys and ten girls. The control population was made up of ten boys and ten girls reading at their appropriate grade level. All youngsters were drawn from the 7th grade of a neighborhood public school, had uniformly above average I.Q. ratings (as established earlier by a non-verbal intelligence testing program throughout the school system), and were also closely matched for age. Consequently, the two groups were quite comparable in sex composition, age, grade placement, ethnic and socio-economic background[4], and I.Q. level.

RESULTS

Inspection of Table II will reveal the unequivocal nature of the data collected and the results of this study.

Clearly, both hypotheses were supported on highly significant levels of confidence. It should also be noted that a breakdown of the two groups along sex lines rendered results simi-

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[4] As already noted in footnote #3, the two groups were drawn in their entirety from an economically, culturally, educationally, and socially underprivileged stratum of the community, living in many ways a ghetto existence.

TABLE II—Intelligence Levels, Absurdities Scores, and Proverbs Scores of the Reading Disability Group and the Control Population[a]

		Disability Group $N = 20$	Control Group $N = 20$	t
I.Q. level[b]	M	112.35	113.50	1.15
	S.D.	3.28	3.44	
Absurdities	M	13.50	9.90	3.21[c]
	S.D.	4.02	3.02	
Proverbs	M	4.70	11.40	6.50[c]
	S.D.	3.55	3.01	

[a] Aid in preparing these data given by L. Alshan is gratefully acknowledged.

[b] Pintner-Cunningham Primary Test: Form A.

[c] $p < .005$, two tailed.

lar to those reported for the two groups taken as wholes. Thus boys with reading disabilities performed significantly higher on Absurdities items than boys free from such malfunction, but scored significantly lower than their control subjects on the Proverb items; and the same relationship held true for girls. (For economy's sake detailed figures on this breakdown are not reported.) Finally, a comparison between the Absurdity score and the Proverb score of the Disability Group (13.50 and 4.70, respectively) eventuated in a *t* value of 2.84, significant at better than the .01 level of confidence. A similar comparison for the Control Group rendered a *t* value of 1.87, significant at a confidence level somewhere between .025 and .05. (All values reported are for two-tailed tests.) Thus all indices calculated pointed in the predicted directions and we can do little but repeat that the data supported the hypotheses advanced.

DISCUSSION

Before examining the theoretical implications of the data and the results reported we want to touch briefly upon a methodological issue. It may be argued that the Proverb items and the Absurdity items were not of comparable difficulty. Evidently, the ability to catch "silly" aspects within the environment develops earlier than the ability to understand profound thoughts expressed in the metaphorical language of proverbs. This observation was of course taken into account when the originators of the Stanford-Binet Test placed "Verbal Absurdities" on a lower age level than "Proverbs." But acknowledgement of this developmental fact by no means detracts from the significance of our findings. The idea that we were simply dealing with a group of children — the reading disability group — who functioned intellectually on a lower level than their peers did, that their inability to deal with proverbs was just a reflection of their not having progressed to a point which would have enabled them to understand the precepts of their society leaves unexplained the question why the presumably properly developed control population performed relatively poorer on an earlier developmental level. The generally high and highly comparable level of both groups' performance on the intelligence test also makes this interpretation of the data quite questionable.

We are therefore inclined to suggest that what we observed were differing foci of concern and interest, and by implication differences in orientation — a position which in many ways corresponds with the point of view expressed by Fromm and Hartman (1955). We suggest that those youngsters who manifested disturbances in their ability to learn how to read were children more sensitive and attuned to the silliness and hypocrisy of the world around them than youngsters who were free from such a disability. It is of course by no means surprising that children coming from "disadvantaged" backgrounds, being denied the plenty of an opulent society around them while at the same time being asked to adopt the educational and cultural values and objectives of this restrictive and restricting world will be so attuned. Indeed, it is somewhat miraculous and bespeaks the remarkable resilience of the human mind that we do not encounter more of such "disabilities." Questions concerning the roads which some youngsters living in such a hypocritical setting have at their disposal in escaping and transcending the debilitating falsehood of their society are extremely intriguing. Why in some instances dramatic "identity crises" (Erikson, 1959; 1962) such as school failures come to the fore while in other instances children can develop without the emergence of such reactions – these are urgent questions for future researches in the convergence of educational, social, and clinical psychology. The complexity of this issue is highlighted by the observation that reading disabilities resembling hysterical symptomatology are also observable in children who were not raised in obviously demeaning settings, settings which do not manifest gross hypocrisy of a social and economic nature even though the hypocrisy of a "disadvantaged" background does produce a disproportionate share of reading disabilities.

Through their selective attention to the absurdities of the environing reality and the concomitant selective inattention to the precepts of its "sages" which the children were asked to understand members of the Disability Group showed striking characteristics of what Sullivan (1956) described as typically hysterical character features. It will be recalled that he suggested that the hysteric is raised by and has learned to imitate essentially disrespectful people (or an essentially disrespectful world), people (or a world) expressing hostility not so much by acts of commission as by acts of omission. The very symptom exhibited by these children, *in*ability to learn, fits excellently into Sullivan's thinking about the hysteric and is in harmony with behavioral characteristics we observed in the test responses of our subjects. *In*ability to learn and the implied *dis*interest in what the world has to say to him through the written word – this operation is clearly compatible with what one would expect from an essentially disrespectful and self-absorbed person. But such self-absorbed disrespectfulness requires some selective attention to data which offer justification for such an attitude, requires keen awareness of disrespect and hypocrisy in others. And it demands selective inattention vis-a-vis situations which are neither hypocritical nor ridiculous. In their selectively focused attention and inattention the children with reading disabilities revealed precisely this type of orientation.

When Sullivan discussed the hysteric as a self-absorbed person unfortunate enough to meet during crucial eras in his life and in crucial ways with hostility which was expressed through disrespect and disinterest he had in mind much more dramatic hysterical phenomena than some common school difficulty. He thought of the often fantastic "illnesses," the classical conversion symptoms which patients can employ in bringing discomfort to others while they remained in self-absorbed fashion in the center of the stage. This dynamic may be observed in the reading disability child, too. He, too, spreads discomfort and he does this by acts of omission rather than by acts of commission; and he, too, becomes the center of busy efforts on the part of educators, psychologists, and other legally responsible people, including, at least occasionally, his previously rather disinterested parents. He may even become the proud boy whose claim to fame was that nobody, but absolutely nobody could teach him how to read. His focus of attention is on the essential disinterest he perceives all around even when it is thinly and hypocritically disguised as interest and in his inability to learn he seems to express his own disinterest in the world. The contemptuous disdain of the hysteric for his fellow men is well expressed by the reading disability child in the symptom itself: it expresses detached, noncommunicative self-absorption and a derogatory selective attention focused on "disdainful" and contemptible aspects of his surroundings.

Clearly, our study was not designed to assess the important historical antecedents Sullivan suggested as crucial in the development of hysteria. We cannot say that the reading disability youngsters were actually raised by self-absorbed, hypocritical, and disrespectful individuals—however, we can say that they were raised in a hypocritical, self-absorbed, self-righteous, and disrespectful setting: a setting which selectively disregards how it has shortchanged youngsters and then demands that they adopt its values. (As pointed out earlier, future research will have to address itself to the question why some youngsters escape the debilitating effects of this assault and insult.) And we can say that they behave in their symptoms and on the test we devised in a manner congruent with and to be expected of children sensitive and attuned to disrespect, dishonesty, hypocrisy, and insincerity. These features they share with other hysterics Sullivan described.

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An Indicator of Suicidal Ideation on the Bender Visual-Motor Gestalt Test

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Summary: Hospitalized psychiatric patients responding on the Bender-Gestalt Test with the 'penetration' of Design 6 into Design 5, did display significantly more suicidal ideation in the predicted direction than did a matched control group ($P < .005$). The results were taken to suggest the utility of combining this variable with other predictive criteria derived from Rorschach research to help the clinician make recommendations about suicidally ideated psychiatric patients.

The prediction of suicidal potential from projective data is a problem often faced by the practicing clinician. A number of attempts have been made to assist in differentiating suicidal individuals from others, utilizing primarily the Rorschach Test. These attempts range from individual case analysis (Beck, 1945; Rubin, 1946; Ulett, Martin & McBride, 1950), configurational approaches (Hertz, 1948, 1949), to a "sign approach" (Martin, 1952; Sapolsky, 1963), or combinations of the above (Sakheim, 1950).

In one sense, the present study may be viewed as a sign approach, utilizing the Bender Visual-Motor Gestalt Test to predict the presence of suicidal ideation in the individual. There is already a mass of research and clinical evidence to support the role of perceptual-motor tasks on the Bender-Gestalt in the diagnosis of organic brain damage, as well as the projective analysis of personality (Billingslea, 1948; Gobetz, 1953; Hammer, 1954; Hutt, 1950).

Levine (1960) has cited the symbolic implications of certain idiosyncratic distortions when a patient attempts to reproduce the Bender-Gestalt figures. Among these distortions it was noted that the vertical element of Design 6, represented by intersecting sinusoidal lines which we view in terms of affects, is sometimes drawn so as to actually penetrate or run into the open semi-circle of dots on Design 5, which we view as depicting a normally assertive mother-figure. This distortion was observed clinically to be related to one of several indices regarding a possible warning of suicide since it represents to us both an aggression and affect-propelled wish to return to the womb. In the present study, it is therefore hypothesized that the 'penetration' of Design 5 by Design 6, will predict to a significantly greater probability of suicidal ideation than a comparable control group which has not produced this pattern.

METHOD

Experimental Subjects

S's were voluntarily hospitalized patients with functional psychiatric disorders, who had been examined within the past three year period. Selection was based on the 'penetration' response of Design 6 into the open semi-circular area of Design 5, described above. This group of 25 subjects, designated as Experimental, consisted of 8 males and 17 females, ranging in age from 15 to 58 years (mean = 33.16).

Control Subjects

Twenty-five cases were selected among patients who had been similarly examined during this three year period and had not responded according to predictor criterion. Selection, made without prior knowledge of case history data, was based on an effort to match the experimental group on a patient-to-patient basis for age, sex, and psychiatric discharge diagnosis. Pairs of patients were considered matched in age if there was no more than a three year difference. No significant differences were found to exist between the two groups when t-tests for the difference between uncorrelated means was applied. Eight males and 17 females, ranging in age from 16 to 56 (mean = 32.84) comprised the control group.

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Table I—Distribution of Psychiatric Discharge Diagnoses for Both Experimental (N=25) and Control (N=25) Groups

Neurosis	Manic-Depressive	Schizo-phrenic	Psychotic Depression
2	3	16	4

Procedure

When a subject was discharged from the hospital, his cumulative psychiatric record was examined for indications of suicidal ideation. A patient was considered to have been suicidally ideated if during his stay there was at least one recorded reference of suicidal thought or actual attempt. Without prior knowledge of the nature of the experiment, three independent judges, all staff psychologists, attained 92% agreement in classifying the presence of suicidal ideation from the psychiatric record.

Results

Table II summarizes the distribution of suicidal ideation found within the two groups. Random sampling of 50 records from the hospital files for this three year period, indicated that 46% of the patients evidenced suicidal ideation. Since this percent does not differ significantly from 50%, it would suggest that on the basis of chance, we could expect that half of the subjects in each of the groups would express suicidal ideas. Therefore, 12.5 cases were designated as the expected frequency in each cell of the contingency table. A Chi-Square test with Yates correction for continuity yielded a value of 8.91. This is significant at the .01 level for a two-tailed test (1 df). Since the prediction was directional in favor of the experimental group, a one-tailed test based on half of the two-tailed probability would be significant at the .005 level of confidence. The prediction that the experimental group would show a significantly greater occurrence of suicidal ideation than the control group was therefore supported by the data.

Table II—Comparison of Experimental (N=25) and Control (N=25) Groups with Respect to Suicidal Ideation

	Suicidal Ideation	No Suicidal Ideation
Experimental	22	3
Control	11	14
	χ^2 8.91[a]	

[a] Significance of Chi-Square for two-tailed test; (1df): $p < .01$; one-tailed test (1df): $p < .005$

Discussion

It is noteworthy that 88% of the experimental group presenting the 'penetration' sign on the Bender, also evidenced suicidal thinking. However, limitation of sample size warrants caution. Nonetheless, the clinician is once again alerted to at least the probable existence of suicidal ideas in the hospitalized schizophrenic patient who responds to the Bender as outlined above. This may prove particularly important if the patient has not communicated suicidal thinking to the therapist.

That 44% of all control subjects showed suicidal ideation is not surprising since this percent does not differ significantly from the 46% hospital-wide baseline of suicidally ideated patients described above. Moreover, the one variable under investigation would not be expected to account for all such ideation. However, when taken in combination with other predictor variables, such as demonstrated by Sapolsky (1963) and Hertz, (1949), the validity of statements concerning suicidal ideation should be significantly increased.

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Level of Perceptual Development as Reflected in Responses to the Holtzman Inkblot Technique[1]

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Summary: To investigate the relationships between chronological age and scores on 10 variables from the Holtzman Inkblot Technique, 586 normal *S*s comprising five criterion age-groups ranging from 5.2 to 19.5 years were tested. Each group had an equal number of males and females. Following a statistical correction for number of rejections, a sex-by-age analysis of variance revealed no significant sex differences or sex-by-age interactions. However, significant age-group differences were found for all 10 variables, six of them resulting in steadily increasing means across the five groups. These age trends are consistent with the sequence of perceptual change outlined by developmental theory, and are interpreted as indicating a developmental shift in the dominance of perceptual functions.

Working within the framework of developmental theory, as advanced by Heinz Werner (1957a), a number of investigators have reported relationships between formal aspects of performance on the Rorschach technique and various measures of developmental maturity. The general paradigm followed by these studies has been that of assessing levels of perceptual organization of normal and deviant groups by means of developmental Rorschach scoring systems. The basic principle of perceptual development is characterized as progression along a continuum of increasing differentiation and integration. With specific reference to the Rorschach scoring systems based on this principle, there is a decrease of the undifferentiated diffuse responses and an increase of articulated and integrated whole and detail responses having good form level. The latest revision of these developmental indices focuses on four aspects of Rorschach performance: the adequacy and specificity of form responses, the dominance or subordinance of form to color and shading determinants, the perception of activity, and the organization of blot elements (Phillips, Kaden, & Waldman, 1959).

A number of validation studies of the earlier forms of the scoring systems, which dealt only with the structural aspects of responses such as form level and location, demonstrated varying degrees of relationships between Rorschach measures and chronological age in children (Hemmendinger, 1953), increasing tachistoscopic exposure of the Rorschach cards (Framo, 1952), and degree of psychiatric impairment (Frank, 1952; Friedman, 1953; Pena, 1953; Siegel, 1953). Later studies, which included additional, empirically determined developmental scores such as human movement, yielded significant relationships between the various indices and measures of social adequacy or effectiveness (Lane, 1955; Fowler, 1957; Smith & Phillips, 1959; Wilensky, 1959), performance on psychomotor and cognitive tasks under conditions of distraction stress (Lofchie, 1955), and modes of symptom expression among psychiatric populations (Hurwitz, 1954; Kruger, 1954; Misch, 1954). The findings of these numerous studies are impressive when considered together in that they have served to order a variety of groups and behaviors under the broad concept of developmental level and have pre-

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TABLE I—Means and Ranges for Age in Years of the Five Criterion Age-Groups

	Criterion Age-Groups									
	I		II		III		IV		V	
	M	F	M	F	M	F	M	F	M	F
N	61	61	58	58	92	92	34	34	48	48
Mean Age	5.3	5.2	9.2	9.0	12.7	12.6	17.0	17.0	19.4	19.5
Age Range	4 to 6		8 to 10		12 to 14		16 to 18		18 to 22	

sented a systematic body of data for the validity of the various Rorschach measures as perceptual indices of development.

However, inconsistencies are present in these data concerning particular developmental indices, which have produced relationships contrary to theoretical expectations. These inconsistencies may be due to the psychometric inadequacies of the Rorschach technique, to the scoring systems employed, or to the small size and possible homogeneity of the population samples studied.

The present study is an attempt to confirm and clarify the earlier work with the Rorschach on the relationship between chronological age and the various developmental indices. Chronological age is here considered to be the best representative of developmental level, given large sampling of normal populations within several age ranges. Analysis of the responses obtained from a broad range of different age groups serves to delineate the perceptual developmental trends. The use of a recently developed inkblot test, the Holtzman Inkblot Technique (Holtzman, Thorpe, Swartz, & Herron, 1961), provides a more adequate and reliable sampling of perceptual behavior, thus avoiding the serious psychometric inadequacies of the Rorschach, as well as permitting the extraction of scores on specific variables which have not been dealt with adequately in the traditional scoring systems of the Rorschach.

With regard to the question of using a different inkblot technique to corroborate results obtained from the Rorschach test, it may be said that this question is pointed not so much to the use of different inkblots *per se*, but to the use of scores or variables which differ from the traditional Rorschach scoring categories. In response to this question it may be said that the variables on the Holtzman Inkblot Technique are psychometrically refined derivatives of the usual Rorschach scores and, as such, are more stable and reliable measures.

METHOD

Subjects. Five criterion age-groups, consisting of 586 normal *Ss*, were employed to provide an age range of from five to 22 years.[2] Sample sizes, mean ages, and age ranges for each of the five groups are presented in Table I. Each group had an equal number of males and females.

Subjects in Group I were drawn from a large number of nursery schools in Austin, Texas. *Ss* in Group II were sampled from third and fourth grades of elementary schools in cities in Connecticut and Texas. The average IQ for the 72 *Ss* from the Connecticut community was 106 (Kuhlman-Anderson Test) and 112 (California Test of Mental Maturity) for the 44 *Ss* in Texas. Subjects in Group III were seventh grade students selected from four widely separated communities in Texas with a mean IQ of 107 (California Test of Mental Maturity). Group IV consists of eleventh grade students sampled randomly from two high schools in Chicago. Group V consists of freshmen and sophomore students, volunteers from a variety of classes at The University of Texas. No specific information on intelligence was available for Groups I, IV, and V.

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[2] Appreciation is expressed to Mrs. Anne G. Beck of Chicago, Ernest A. Haggard of the University of Illinois College of Medicine, Carson McGuire of the University of Texas, and Britton K. Ruebush of the University of Minnesota for their cooperation in making some of these *Ss* available.

Although these five groups cannot be considered random samples from the general population in their respective age ranges, in that they probably do not represent the lower classifications of intelligence and socioeconomic status, they are all judged approximately similar in terms of these two factors.

Procedure. The Holtzman Inkblot Technique (HIT) was administered to all *S*s in each of the five criterion age-groups.

Ten of the 22 scoring variables were selected for use in the present study on the basis of the work with the Rorschach, cited earlier, which showed promise for these variables as developmental indices. (See Table II). Detailed procedures for scoring these variables are given in Holtzman, *et al.* (1961).

In the collection of the HIT protocols examiners were instructed to follow closely the standardized procedures for administration, thus reducing to a minimum possible examiner influences. Also, routine check-scoring of the protocols served to eliminate scoring biases.

Form A of the HIT was administered to half of the male and half of the female *S*s in Groups I, IV, and V; and the remaining *S*s in these groups received Form B. All *S*s in Groups II and III received Form B.

TABLE II—Name and Brief Description of 10 Variables from the Holtzman Inkblot Technique

Location. A 3-point scale used to measure the tendency to fragment the inkblot into smaller areas. The greater the area used, the lower the score.

Form Definiteness. A 5-point scale measuring the definiteness of the form of the concept reported, regardless of the appropriateness of this form to the structure of the inkblot. The greater the score, the more definite the concept.

Form Appropriateness. A 3-point scale indicating the goodness of fit of the form of the percept to the form of the inkblot area used. The higher the score, the better the fit.

Color. A 4-point scale measuring the primacy of both chromatic and achromatic color in determining a response. The higher the score, the more color is used as a primary determinant.

Shading. A 3-point scale used to measure the primacy of shading as a response determinant. The higher the score, the more shading is used as a primary determinant.

Movement. A 5-point scale indicating the movement energy level the subject voluntarily ascribes to his percept regardless of its content. The higher the score, the greater the movement energy level.

Integration. A 2-point scale indicating the presence or absence of the organization of adequately perceived inkblot elements into a unified response.

Pathognomic Verbalization. A 5-point scale measuring nine qualitatively different types of autistic and pathological thinking. The higher the score, the more deviant the thinking.

Human. A 3-point scale used to measure the amount of human content seen. Each inkblot is scored 0 for no human content, 1 for parts of a human, and 2 for a whole human.

Animal. A 3-point scale used to measure the amount of animal content seen. Each inkblot is scored 0 for no animal content, 1 for parts of animals, and 2 for a whole animal.

RESULTS AND DISCUSSION

A two-way classification (sex by age) analysis of variance model was employed to test main and interaction effects of the summary scores for each of the 10 variables used in the present study. Prior to the analysis of the data, it was necessary to correct the scores on each variable for the number of inkblots rejected, since the groups differed in this respect. A rejection is scored when, during the administration of the HIT, *S* fails to give a response to a card. An increase in rejections results in a decrease in scores on most other variables. In order to assess accurately group differences on individual variables, these scores were corrected in a manner which results in an accurate approximation of what the scores would have been if each *S* had responded to the rejected cards in the same manner as he did to the

TABLE III—Means, Standard Deviations and Significance Levels for the Five Criterion Age-Groups on Ten HIT Variables

Variable		*Criterion Age-Groups* I	II	III	IV	V
Form Appropriateness**	Mean	38.2	42.1	44.6	43.0	43.9
	S. D.	8.4	7.8	8.2	3.6	6.9
Form Definiteness**	Mean	61.8	71.7	83.0	83.1	82.7
	S. D.	18.0	24.9	24.4	18.7	11.0
Integration**	Mean	1.9	3.8	4.3	5.6	12.0
	S. D.	2.4	3.6	4.2	3.0	6.6
Movement**	Mean	16.7	30.5	30.4	32.2	42.8
	S. D.	14.9	21.1	20.2	14.6	15.6
Human**	Mean	14.2	16.0	17.4	23.3	25.3
	S. D.	8.6	9.0	7.7	9.5	9.2
Shading**	Mean	5.8	9.9	8.9	12.3	17.6
	S. D.	4.9	6.8	7.5	5.9	9.3
Color**	Mean	25.5	25.6	19.1	21.5	22.7
	S. D.	22.6	15.4	13.1	9.4	10.4
Location**	Mean	30.7	33.2	34.7	42.4	24.4
	S. D.	17.9	22.7	22.1	15.8	13.8
Pathognomic Verbalization**	Mean	11.4	5.6	2.6	6.6	6.1
	S. D.	11.2	9.2	4.7	8.3	7.1
Animal*	Mean	22.7	24.7	22.0	26.3	23.4
	S. D.	13.2	8.8	12.1	8.4	6.7

*Variable having significant age effect beyond the .05 level in the analysis of variance.
**Variables having significant age effect beyond the .001 level in the analyses of variance.

others.[3] Unlike other possible correction methods, the adopted procedure yields scores which differ only slightly from the scores obtained when the number of rejections is very small. Following these corrections, analyses of variance were computed for each of the 10 variables.

The means and standard deviations for each variable for each of the five age-groups are presented in Table III. Although no significant sex differences or sex-by-age interactions were found, the analyses of variance yielded age-group differences for all ten variables. Six of these – Form Appropriateness, Form Definiteness, Integration, Movement, Human, and Shading – resulted in a consistent and meaningful developmental ordering of the five groups. The developmental trends of scores on these variables confirm similar findings with related scores on the Rorschach. Entirely in keeping with Werner's concept of developmental change are the age trends observed for Form Appropriateness, Form Definiteness, and Integration: an increase with age of responses involving concepts of a high form definiteness as contrasted with vague and amorphous form responses, and an increase of form appropriate responses characterized by the adequate organization of separate blot areas. Although the highly significant developmental relationships observed for the Movement and Human variables are similar to empirical results found in a number of Rorschach studies, these relationships are not readily derived from developmental principles. However, it is suggested here that the perception of humans in movement, as an integral part of an inkblot re-

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[3] The method of correction adjusts the ΣX and ΣX^2 quantities in each of the 10 cells of the analysis of variance design by the following formulae:

$$\text{Corrected } \Sigma X = \Sigma X \left(\frac{45}{45 - R}\right)$$

$$\text{Corrected } \Sigma X^2 = \Sigma X^2 \left(\frac{45}{45 - R}\right)^2$$

where R is the mean number of rejections for all *Ss* in each cell. The low order correlations between the variables in question and number of rejections had an essentially negligible effect on this method.

sponse, is an expression of the integrative aspect of perceptual development. In earlier factor-matching studies with the HIT, primarily these three variables – Integration, Movement, and Human – were found to define a single factor which was invariant across a wide variety of populations ranging from normal children and adults to chronic schizophrenic groups, depressed psychotic patients, and mentally retarded persons. Among the five age-groups of the present study, scores on these three variables are positively correlated. Among the five age-groups, product moment coefficients range from .52 to .74 for the correlation between Movement and Integration, from .32 to .65 between Movement and Human, and .32 to .46 between Integration and Human. It is of further interest to note that the correlations between Animal and Integration, within these five groups, are not as high as are those between Human and Integration. Similar relationships among Rorschach indices have been reported by Stein (1951) and Brooks and Phillips (1958). Thorpe (1960), in more detailed analyses of these data, reported that the greater part of the total Integration score consists of functional integration, i.e., the integration of blot areas by means of interactive movement. These findings, as well as the lack of a developmental trend for the Animal variable, support the interpretation of the perception of human interactive movement as an expression of integrative perceptual functions.

The age trend found for Shading is not entirely consistent with the results of previous studies with the Rorschach. The Rorschach studies considered each of the determinants shading and color as used in combination with form in terms of form dominance (e.g., FC, Fc) or form subordinance (e.g., CF, cF), and found such patterns to relate to other measures of developmental maturity. Thorpe (1960) found significant age trends in similar pattern analyses of HIT Color and Shading scores. However, despite the results of these earlier studies, the present highly significant findings for the Shading variable may indicate that, with increasing age, there is an increasing sensitivity to, and appropriate use of this subtle aspect of the stimulus characteristics of the HIT cards. Holtzman, *et al.* (1961) in an item analysis of the HIT cards report that, within normal adult populations, the use of shading as a primary determinant of responses is relatively rare. Thus, it is possible that the structural differences between the Rorschach and the HIT stimuli, wherein the latter present a greater variety of color and separate form elements, may account for the observance of the age trend for Shading on the HIT but not on the Rorschach.

The significant differences between groups for the variable Location indicate an increasing degree of differentiation of the inkblots up to Group IV, followed by an abrupt decrease in this score. An earlier analysis of the Location scores (Thorpe, 1960) involved the classification of whole, large detail, and small detail responses in combination with high scores on Integration, Form Appropriateness, and Form Definiteness. This analysis indicated that the shift of Location scores from Group IV to Group V reflects a shift to the integration of separate blot areas into a unified whole response. Thus, as with the Color variable, Location scores are most appropriately analyzed in terms of their patterning with scores on other variables.

The decrease in mean scores on Pathognomic Verbalization from Group I to Group III is consistent with the results of past Rorschach studies which have shown a general decrease with age in bizarre and autistic responses. However, such studies concerned specifically with chronological age have not used groups beyond 10 years of age. Thus, subsequent increase of these scores beyond Group III remains to be confirmed. Further study of shifts in the qualitative categories of this variable with age may clarify the nature of the changes observed with the summary scores.

It is important to note that, coincident with the increase in chronological age across the five age-groups, there is a possible corresponding increase in intelligence due primarily to the increase in educational level. However, Thorpe (1960) has reported that, at least within a group of normal school children, no relationships were found between IQ and any of the variables employed in this investigation. Also, previous studies with the Rorschach have found only slight, if any, relationships between intelligence and developmental indices for all ages. Thus, possible differences in intelligence between the five age-groups have not contributed significantly to the age trends observed.

It is concluded that the findings of this study are in agreement with the sequence of perceptual change outlined by developmental theory, as well as with the results of previous Rorschach studies. Concerning the age trends observed here, the abrupt, quantitative increases in the HIT scores between the different age-groups point to an underlying qualitative discontinuity of development. Whereas such discontinuity may represent the emergence of a new perceptual operation or function, as Werner (1957b) has pointed out, mere unevenness of development does not necessarily indicate novel process formation. Rather, the present data suggest the emergence of a novel pattern of operations which emerges as a consequence of a change in the dominance of existing functions, such as differentiation and integration. Moreover, these results indicate that HIT summary scores are more appropriate than Rorschach scores, usually dichotomized simply as developmentally "high" or "low," for specifying not only levels of perceptual development but also the types of operations underlying these levels.

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Follow-up Validation of Rorschach Tempo and Color Use Indicators of Schizophrenia[1]

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Summary: Two to five year psychiatric follow-ups through a case register of original cross-validating samples for some Rorschach tempo and color use indicators of schizophrenia found subsequent diagnosis of schizophrenia associated (a) beyond the .001 level with certain deviations from normative tempo and (b) beyond the .01 level with presence of pure C or two or more of the following: 1-2 CF, Sum C 1.5-3.0, CF without C'. Combined classification by the tempo and color variables was accurate in 90% of schizophrenic and 80% of nonschizophrenic cases manifesting neither or both variables. These findings, occurring within a population of psychiatric patients referred for testing, recommend the clinical utility of the variables.

Previous papers (Weiner, 1961; Weiner, 1962; Weiner, 1964) have reported the derivation and cross-validation of some aspects of Rorschach tempo and color use indicative of schizophrenia. The impetus for the current investigation was Piotrowski's (1963) conclusion that the independent criterion for Rorschach diagnostic judgments must be "psychiatric clinical diagnoses made after the patient has been carefully followed-up after at least three years." A cumulative psychiatric case register established in Monroe County, New York, (Gardner, *et al.*, 1963) made possible two to five-year follow-ups of the patient groups on whom the Rorschach tempo and color indicators were originally cross-validated.

The Rorschach tempo indicator of schizophrenia, labeled *deviant tempo,* is scored as present whenever one or more of the following deviations from normative response rates occurs in a record: (a) more responses to V than to IV, (b) more to V than to VI, (c) more to IX than to VIII, and (d) more to IX than to X. In the previous studies (Weiner, 1962) the *deviant tempo* variable correctly classified 44 of 61 schizophrenic and 67 of 104 nonschizophrenic patients, for a total accuracy of 67%. The relationship between *deviant tempo* and the likelihood of a schizophrenic diagnosis is consistent with the classical description of irregularity in the rate and flow of associations as an aspect of disordered thinking in schizophrenia (Bleuler, 1950, p. 37).

The Rorschach color use indicator of schizophrenia, which is labeled *color stress,* is scored as present whenever one or more pure C responses occur in a record or when two or more of the following obtain: (a) #CF 1 or 2, (b) Sum C 1.5-3.0, and (c) CF without C'. In the previous studies (Weiner, 1961; Weiner, 1964) the *color stress* variable correctly classified 58 of 82 schizophrenic and 107 of 142 nonschizophrenic patients, for a total accuracy of 74%.

The following tentative rationale has been developed for the *color stress* variable. The signs of color stress reflect some minimal use of chromatic color without use of achromatic color. If a testee uses colors freely, or if he either ignores colors or limits himself to form-dominant color responses (FC), he does not manifest *color stress.* These two modes of color response are characteristic of certain styles: the individual who is likely to be emotionally labile and to use colors freely or a person who either avoids color or integrates it into highly structured percepts. In both cases, the individual manifests a more or less stable style in accord with which he integrates his affective experiences. The person who receives signs of *color stress,* on the other hand, is one who manifests neither style. Hence, it may be that such a person lacks a stable style and has no consistent resources for integrating his affective experiences. This rationale rests on the assumptions, as discussed by Shapiro (1960), that handling of color on the Rorschach is related to style of integrating affective experience, and that failures in such integrative capacities are suggestive of schizophrenia.

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[1] Portions of this paper were presented at the 1964 meetings of the American Psychological Association in Los Angeles.

PROCEDURE

Psychiatric contacts subsequent to their Rorschach examination were investigated for 165 patients previously described (Weiner, 1962). This previous population included 83 patients seen in an adult psychiatric clinic between July, 1959, and June, 1961, and 82 patients tested in the clinic and inpatient psychiatric services of a general hospital in the year 1958. Follow-up investigation of psychiatric contact and diagnostic status was made possible by the establishment on January 1, 1960, of a cumulative psychiatric case register for Monroe County.[2] All but 2-3% of the county residents seen in the psychiatric inpatient units, outpatient facilities, and by psychiatrists in private practice are reported to the register, and these reports include diagnostic impressions which for persons continuing in outpatient therapy are collected at three to six-month intervals. The 165 previously studied patients were checked against the register in July, 1963; hence, the follow-up period ranges from two to five years.

Follow-up diagnoses were available on 89, or 53%, of the patient group. As would be expected, patients originally diagnosed schizophrenic were more likely (72%) to have subsequent psychiatric contacts than those considered nonschizophrenic, 43% of whom appeared in the follow-up. However, the follow-up sample consistently reflected the incidence of *deviant tempo* and *color stress* in the original population: 52% of those with and 56% of those without *deviant tempo* appeared in the follow-up, as did 57% of those with and 49% of those without *color stress.*

The number of psychiatric contacts for these 89 patients in the two to five-year period since the original testing ranged from one to eight, with a median of 2.3 subsequent contacts. Thirty-two of the patients were active in some psychiatric contact at the time of the follow-up. For 42 patients, follow-up diagnoses had been made at the University Medical Center where the original testing had been done; the other 47 patients had also been diagnosed in one or more settings independent of the medical center, including private offices, Veterans Administration facilities, and the local State and County Hospitals. Review of the follow-up diagnoses revealed changes in diagnosis for 14 patients. Seven patients originally diagnosed schizophrenic were subsequently considered nonschizophrenic, and seven previously listed as having neuroses or character disorders were later adjudged schizophrenic. Of these 14 patients with a change in diagnosis, five had had their subsequent contacts only at the University Medical Center, and nine had been seen elsewhere: X^2 analysis of these data revealed no relationship between change in diagnosis and change in the locus of psychiatric contact.

The sample as diagnosed at the time of the follow-up study included 45 schizophrenic and 44 nonschizophrenic patients. These 89 patients, on whom the data of this report are based, ranged in age from 15 to 62, with a mean age of 25.8 years, and had given from nine to 72 responses to the Rorschach, with a mean R of 24.5. There were no significant differences between the schizophrenic and nonschizophrenic groups in age or in mean or variance of Rorschach response total. The sample included 43 male and 46 female patients.

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RESULTS

Table I indicates the numbers of subsequently diagnosed schizophrenic and nonschizophrenic patients whose Rorschach records obtained two to five years earlier contained indices of *deviant tempo*. The degree of association between *deviant tempo* and schizophrenia is significant beyond the .001 level of confidence. It may be seen that the *deviant tempo* variable correctly classifies the follow-up diagnosis for 31 of the schizophrenics and 33 of the nonschizophrenics, for an overall accuracy of 72%.

TABLE I—Numbers of Schizophrenic (Sc) and Nonschizophrenic (NSc) Patients Manifesting Deviant Tempo on the Rorschach

	Deviant Tempo	
Group	Present	Not present
Sc	31	14
NSc	11	33

$X^2=17.81$, $p<.001$

Table II lists the numbers of variously diagnosed patients whose original Rorschach records were indicative of *color stress*. The degree of association between schizophrenia and *color stress* is significant beyond the .01 level of confidence. The *color stress* variable correctly classifies 25 of the schizophrenic and 32 of the nonschizophrenic patients, for an overall accuracy of 64%.

TABLE II—Numbers of Schizophrenic (Sc) and Nonschizophrenic (NSc) Patients Manifesting Color Stress on the Rorschach

	Color stress	
Group	Present	Not present
Sc	25	20
NSc	12	32

$X^2=7.41$, $p<.01$

An additional analysis was done to evaluate the combined diagnostic efficiency of *deviant tempo* and *color stress*. Table III indicates the frequency with which members of the diagnostic groups manifested both or neither of the variables. The degree of association between schizophrenia and this combined use of the variables is significant well beyond the .001 confidence level. Furthermore, it can be seen that an approach which considers presence of both *deviant tempo* and *color stress* as diagnostic of schizophrenia, and the presence of neither as contraindicative of schizophrenia, correctly classifies 40, or 83%, of the 48 patients receiving both signs or neither.

TABLE III—Numbers of Schizophrenic (Sc) and Nonschizophrenic (NSc) Patients Manifesting Both Deviant Tempo and Color Stress or Neither Rorschach Variable

Group	Deviant tempo & Color stress	Neither
Sc	17	6
NSc	2	23

$X^2=24.10$, $p<.001$

Finally, an analysis was done to determine the relative independence of the tempo and color variables. Nineteen of the patients manifested both indices and 29 neither; 23 patients were found to have *deviant tempo* but not *color stress,* and 18 had the opposite finding. The *phi* coefficient for these data is .07, indicating a high degree of independence of the two variables.

DISCUSSION

The data clearly indicate that likelihood of being diagnosed schizophrenic in the county where this study was done is associated with the presence of signs of *deviant tempo* and *color stress* in Rorschachs obtained two to five years prior to the diagnostic judgments. Furthermore, a combined use of the tempo and color variables, which occur quite independently, is a highly efficient diagnostic tool which correctly identified nearly nine of every 10 schizophrenics and almost four of every five nonschizophrenic patients who could be thus classified.

Of particular importance in the evaluation of these findings is consideration of the sampling. There is no basis for asserting that the patients on whom the follow-up validation of these Rorschach indicators was conducted are representative either of schizophrenic or nonschizophrenic groups, nor is a normal sample available for comparison. Hence, generalizations from these data are limited. However, these patients do represent total block samples within certain time periods of schizophrenic and nonschizophrenic patients referred for psychological testing in a psychiatric setting. Therefore, these patients are representative of diagnostic differentiations psychologists are called on to make in actual clinical practice and generalizations can justifiably be made within groups of patients referred for psychological testing.

It can additionally be noted that since the samples are comprised of referred patients, the tempo and color variables are discriminating in difficult cases, cases where limited information or subtle nuances of illness raised a need for test evaluation. As the author has commented elsewhere (Weiner, 1961), empirically derived Rorschach indicators have often come to grief because, having been extracted from comparisons between normals and blatantly disturbed persons for whom testing would be superfluous, they have subsequently been called upon to make diffierentiations among the diagnostic problem cases seen in actual clinical practice.

Finally, consideration may be given to the fact that the significant results in this follow-up study are not surprising in view of the large percentage of patients from whom diagnosis remained unchanged in the follow-up period. Regardless of this lack of change, the requirement for a criterion based on follow-up diagnosis, as presented by Piotrowski, is satisfied by this study. On the other hand, question could be raised about possible halo effects, namely, the degree to which the initial diagnosis exercised a contaminating influence on subsequent judgments. In this connection, it is significant that more than half of the patients were subsequently diagnosed in settings independent of the medical center where they were initially tested. Also relevant are the data reported above which indicate that patients were no less likely to have their diagnoses altered in repeat contacts with the medical center than in evaluations elsewhere. Hence, not halo effects, but rather some stability within patient groups and uniformity of diagnostic style within the county facilities seem to be operative. This conclusion is consistent with the overall findings in the register study that the diagnostic status of patients remains fairly constant over time, that change in diagnosis appears independent of changes in the setting where the patient is seen, and that there is relatively little communication among the county facilities concerning patient diagnosis.[3]

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Story Sequence Analysis of Family TATs[1]

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Summary: One hundred twenty-six three-member families were asked to produce conjointly three TAT stories based on nine cards, which were scored by the Arnold system of Story Sequence Analysis. There were 50 families with normal children, 44 with emotionally maladjusted, 16 with schizophrenic, and 16 with delinquent children. Analysis of the results revealed that the Arnold score successfully differentiated normal from abnormal families, but that the three abnormal groups did not differ from each other. The last set of TAT cards given was the most effective.

In the past decade, there has been a shift in emphasis by behavioral scientists away from an exclusive interest in the symptoms and dynamics of the individual patient toward a greater concern with the patient as part of an ongoing social system. The increasing popularity of conjoint family therapy reinforces the viewpoint that many psychiatric syndromes represent "particular aspects of transactions more or less characteristic of pathologic family processes" (Ferreira, 1963, p. 84). This family-oriented approach to emotional pathology has in turn stimulated various attempts to measure the interpersonal interactions among family members as a small-group phenomenon. These studies have examined family interaction in terms of such factors as equality of participation (Haley, 1964); patterns of conflict and dominance (Farina, 1960); patterns of rejection (Ferreira, 1963); the process of decision making (Ferreira, 1963); the formation of coalitions (Haley, 1962); and the content of the communications among family members (Caputo, 1963). The present study is an attempt to evaluate a final product of family problem solving, specifically, jointly produced TAT stories, by an adaptation of the system of Story Sequence Analysis developed by Magda Arnold (1962).

METHOD

Subjects

There were 126 three-member families (mother, father, and child) who participated in this study. The children were at least 9½ years old, and the families had been living together for more than two years. All family members were white, native-born Americans, literate, in good health, and not employed in the mental health professions. The families which met these criteria were then classified as *normal*, or as one of three types of *abnormal* families on the basis of an independent diagnosis of the child being tested. Briefly defined, these four groups of families are:

(a) *Normal* (Nor): The entire family was functioning adequately with no known emotional problems, and with no members having ever been arrested for a serious offense or having had psychotherapy recommended for them in the past five years. (N=50)

(b) *Emotionally Maladjusted* (Mal): The child tested was diagnosed as having emotional problems of sufficient severity to warrant a recommendation of psychotherapeutic treatment, but the child was neither schizophrenic nor delinquent. This group included children with neu-

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[1] This research was made possible by NIMH grant MH06560-01. The authors are indebted to the many organizations and individuals who helped obtain families for this project, particularly the San Jose Adult and Child Guidance Clinic, the Mental Research Institute of Palo Alto, and the Santa Clara County Juvenile Probation Department. Special thanks are due to Jay Haley, Janet Beavin, Earl Jandron, and Robert Clarke for their invaluable aid.

[2] Jim Olson is presently at The University of Kansas.

rotic, psychosomatic, and adjustment reaction diagnoses. (N=44)

(c) *Schizophrenic* (Scz): The child was diagnosed as such, but was functioning well enough outside of a hospital to be testable in the family situation. (N=16)

(d) *Delinquent* (Del): The child had committed more than one clear-cut overt act of an aggressive, antisocial nature. (N=16).

The fathers' educational and occupational levels were determined, according to the number of years of schooling completed and the Revised Scale for Rating Occupation (Warner, Meeker, and Eells, 1960) respectively. These and other variables describing our *Ss* are found in Table I. Chi-square analyses revealed no significant differences between groups on any of these variables.

Procedure

Each family was tested by one of three *E*s assigned in random order with regard to diagnostic classification. The testing took place in private offices or in testing rooms at the Mental Research Institute in Palo Alto, California. Following a brief interview, the three family members were given a questionnaire to complete, both as individuals and as a family, which was not a part of the present study. After the completion of the questionnaire, *E* presented the family with a set of three TAT cards, numbered 1, 2, and 3. The family members were instructed to work together and make up a story, hopefully one which they all agreed upon, which would link the three cards together in the order in which they were presented. They were told that the story should describe what the characters were feeling and doing, what led up to the situation, and how it would turn out. They were also told that the *E* would leave the room for five minutes, and that on his return, one of the family members, whom they had chosen as the spokesman, would tell *E* the story they had agreed upon. If no decision had been reached in five minutes, an extra minute was allowed. This procedure was repeated twice more with a different set of cards and a different spokesman each time. The three sets of TAT cards used were: (A) 7GF, 5, 10; (B) 13B, 4, 3BM; (C) 6GF, 3GF, 18GF. With the family's full knowledge, the entire procedure was tape recorded.

Scoring

The three final TAT stories of each family were transcribed from the tape and scored by the method of Story Sequence Analysis developed by Arnold (1962). This method had been developed to evaluate, presumably, the storyteller's motivational system. It calls for scoring the essential meaning or import of the sequential themes of his TAT protocol according to a set of complex criteria. This scoring system assigns a value of +1 or +2 to a story with a healthy import, e.g., the hero overcomes adversity by engaging in reasonable action, good interpersonal relations result from cooperation among the characters in the story, etc. A score of −1 or −2 is assigned to socially or personally undesirable themes, e.g., the hero seeks

TABLE I—Characteristics of Subjects

Variable	Nor	Mal	Scz	Del	Total
Male Children[a]	34	28	11	15	88
Female Children[a]	16	16	5	1	38
Age of Child	16.3	14.8	16.5	16.0	16.0
Father's Education	15.5	14.5	14.0	14.0	14.6
Father's Occupational Level	1.4	1.2	1.7	1.6	1.4
Father's Age	45.5	43.0	46.5	45.0	45.0
Mother's Age	42.5	40.0	42.5	41.5	41.5
Number of Children in Family	2.9	3.1	2.7	3.3	3.1

[a] All variables except these two are expressed in median values.

success simply to please others, good interpersonal relations are fated to end in disaster, etc. Story Sequence Analysis would appear to measure the degree to which a *S*'s motivations, beliefs, and habitual ways of viewing the world are congruent with good mental health.

Arnold's method of Story Sequence Analysis was adapted for our purpose of evaluating the family TATs. Our procedure differed from hers in several important respects: (1) our stories are the joint product of three family members, and are not obtained from one individually tested *S*; (2) our stories are orally presented to the *E*, not written by *S*; (3) our three stories are based on nine cards, instead of the ten stories, each in response to a separate card, suggested by Arnold. Therefore, the present study is not simply a replication of Arnold's system in a new setting.

For our purposes, each family TAT story was scored from -2 to $+2$, and the total Story Sequence Analysis score for a family was the algebraic sum of the scores for its three TAT stories. For a sample of 39 stories, the correlation between the scores of two independent judges was $+.80$. Considering the narrow range of scores actually used for each story ($+1$, -1, and -2), this reliability coefficient was considered satisfactory.

Hypothesis and Statistical Analysis

The main hypothesis of this investigation was that the Normal families would achieve significantly higher ("healthier") Story Sequence Analysis scores on all three TAT stories combined than would the three abnormal groups; there seemed no reason to predict any differences among the three abnormal groups on the basis of prior research. The significance of the hypothesized differences between normals and abnormals was evaluated by analysis of variance and subsequent one-tailed $t-$ tests.

Preliminary analyses of variance indicated that the age of the child tested was not a significant variable. Due to the unbalanced ratio of male to female children in the Del group, two different statistical analyses were computed. For the first, the Del group was omitted, and a two-way analysis of variance, with sex of the child as the organismic variable, was performed for the Nor, Mal, and Scz families, using a computer program which allowed for disproportional Ns in the cells. For the second, a simple analysis of variance was computed for the families with male children in all four diagnostic groups.

RESULTS

The combined results for the two analyses of variance are presented in Table II, and the appropriate $t-$ test comparisons in Table III. In Table III, the males and females in each group were combined in analyzing the data from the two-way analysis of variance, since no significant effect due to the sex of the child had been found.

As can be seen from Tables II and III, the data from the two-way analysis of variance showed differences significant at the .01 level to be present between diagnostic groups, and the relevant $t-$ tests indicated that the Mal and Scz groups achieved significantly more pathological Arnold scores than did the Nor control group. No sex differences or interactions between sex and diagnosis were found. The one-way analysis of variance also showed that the four groups of families (male children only) differed significantly from each other. The $t-$ tests indicate that both the Mal and Del groups scored significantly lower than the Nor families, but the difference between the Nor and Scz families with male children was of only borderline significance. Additional two-tailed $t-$ tests indicated no significant differences between any of the abnormal groups.

It was decided to examine also whether each of the three TAT stories by itself differentiated these diagnostic

TABLE II—Analyses of Variance Data for Total Story Sequence Analysis Score

Child's Sex		Nor	Mal	Scz	Del
Male	$\bar{X}$	− .47	−2.18	−1.55	−2.27
	s	2.64	1.68	2.16	2.49
	N	34	28	11	15
Female	$\bar{X}$	−1.00	−2.56	−3.20	
	s	2.63	1.83	1.92	
	N	16	16	5	

(a) Two-way analysis of variance (Nor, Mal, Scz)
F Diagnosis = 6.45 df = 2/104 $p < .01$
F Sex = 2.73 df = 1/104 NS
F Interaction = 0.43 df = 2/104 NS
(b) One-way analysis of variance (all males)
F Diagnosis = 3.63 df = 3/84 $p < .025$

TABLE III—Comparisons of Normal and Abnormal Groups for Data of Table II

Source	Comparison	Means	t	df	p[a]
(a) Two-way (Males plus females)	Nor. vs. Mal	− .64 −2.32	3.63	104	<.001
	Nor vs. Scz	− .64 −2.06	2.21	104	< .01
(b) One-way (Males only)	Nor vs. Mal	− .47 −2.18	2.89	84	<.002
	Nor vs. Scz	− .47 −1.55	1.35	84	< .10
	Nor vs. Del	− .47 −2.27	2.53	84	< .01

[a] All p values are one-tailed

groups, when scored for Story Sequence Analysis. Since the previous results indicated no effects attributable to the sex of the child all families in each group were combined, and a one-way analysis of variance computed comparing all four groups. Briefly, the first two stories did not discriminate among the four groups, but the third story, TAT set "C", did ($F=4.41$, $df=3/122$, $p<.01$). However, since each family received the three sets of TAT cards in the same order, it is not possible to determine whether this third set was more effective because of the stimulus characteristics of its cards, or because it was given last in the series.

DISCUSSION

It is clear from the above results that it was possible to differentiate normal from abnormal groups of three-person families on the basis of the Story Sequence Analysis of their conjointly produced TAT stories. The fact that this differentiation took place on the basis of only three stories and using a greatly modified procedure from that recommended by Arnold speaks well for the validity both of the Arnold system and our criteria for dividing normal from abnormal families. According to the theory underlying the method of Story Sequence Analysis, when compared to normal families, families with abnormal children (emotionally maladjusted, schizophrenic, or delinquent) are characterized by negative motivational patterns. Arnold considers these motivational patterns a reflection of the storyteller's convictions about himself and his world which form a basis for subsequent action.

We would like to generalize these conclusions to triadic family units, whose members have blended their viewpoints in the manufacture of these stories. Specifically, abnormal *families* produce stories which reveal negative attitudes toward achievement, morality and responsibility, human relationships, and reactions to adversity. It would be of considerable importance to determine the history of these negative motivations through future research. For example, do they characterize both parents before they are married, or do they develop with time? Are they equally true of all three family members tested individually, or are they either an outgrowth of the shared interaction between members or perhaps the reflection of one member's forceful influence on the other two? In any case, our results support previous reports of the validity of the Arnold method (Arnold, 1962; Vassiliou, 1962).

The other major finding, that the three abnormal groups did not differ from one another on the Story Sequence Analysis score, is subject to several interpretations. The Arnold system may be insensitive to true differences among abnormal families; or the finer classification of abnormal families according to the current clinical diagnosis of their child may be inappropriate either because the child's behavior is a poor basis for characterizing the entire family, or because the psychiatric diagnoses themselves are not relevant for family classification. Another possibility, of course, is that all abnormal families have abnormal basic motivations, and the differences which appear in surface behavior and other tests are merely reflecting differences in learned ways of reacting to, or acting out, these motivational patterns.

Perhaps another reason for the lack of difference among our abnormal families has to do with the nature of our sample. Our families were predominantly upper-middle and lower-middle class, cooperative, and testable, and therefore shared many common values and behaviors. Significant differences among abnormal families might have occurred, for example, if lower class delinquents or regressed schizophrenics had been used. Our results, although not generalizable to different groups than the ones tested, point to some essential similarities in the motivational systems of abnormal families with similar backgrounds, as well as essential differences between these families and normal families with the same socioeconomic backgrounds.

There are many questions for future research raised by our results, in addition to the ones mentioned above. For example, the finding that TAT set C more effectively differentiates our groups than either of the other two sets is worth further investigation to determine if this is a result of the specific cards used or their placement at the end of the series. To answer the general question whether the motivations measured by Arnold are fundamental characteristics of the individual or are potentialities brought out by interacting with family members, it would be useful to test family members individually, as a family, and interspersed with other families, such as testing the parents conjointly with someone else's child. It would also be useful to compare the efficacy of the standard diagnostic categories and the Arnold scores of families as prognostic indices for therapy. This general method would seem, therefore, to be a potentially fruitful research instrument for understanding families.

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Received December 31, 1964

BOOK REVIEWS

Abt, L. & Riess, B., *Progress in Clinical Psychology,* Volume VI, Grune and Stratton, New York, 1964.

Progress has a most enticing sound. Putting the word in the title of a book resembles including the word Electronic in a new company's title before issuing stock. The lure of fantasied rewards is irresistible.

In their latest collaboration, Lawrence Abt and Bernard Riess continue the editorship of Volume VI in the "Progress" series begun in 1952. Their purposes, stated at the beginning, are to collect papers of varying viewpoints which together make a contribution to the science of Clinical Psychology and in turn to the larger science of Psychology as a whole. The promise, held out by the title and by such a worthwhile editorial policy, is only occasionally fulfilled.

Looking for "progress", the reader must all too often settle for mere proliferation. Seeking an overview or some broadly unifying concepts, he must instead search rather diligently to uncover and extract the many good ideas presented. The editors do not make it clear whether they wish the contributors to survey, chronologically, the published literature (as in the *Annual Review of Psychology* series) or to elucidate on their current areas of investigation (as, perhaps, in the *Psychoanalytic Study of the Child* series). In attempting in various chapters to do one or the other, the reader is caught continuously off guard and becomes confused.

The book's format is divided into the all too familiar rubrics traditional to the field of Clinical Psychology: measurement, theory, research, and application. In addition, the latest volume expands its scope by containing a section on the development and application of Clinical Psychology abroad. Samples are obtained from Japan, Latin America, and the Arab Middle East, although again no effort is made to make any systematic survey of the field abroad. Interestingly, the Rorschach is the primary psychodiagnostic instrument in Japan, and Japanese psychologists, no less than their American counterparts, are concerned with the thorny problems of validity and reliability.

Of most direct and immediate interest to the readers of this journal is the section on Measurement, in which one chapter, by Albert Rabin and John Hurley, surveys what's new in Projective Techniques, and the other, by Auke Tellegen, examines recent developments regarding the MMPI. Rabin and Hurley set themselves the task of reviewing both theoretical and empirical publications for the period 1960-1963 dealing with developments of the more popular projective methods as well as a brief survey of newly devised methods. Several factors painfully emerge. For one, American psychologists continue to struggle with the same conceptual and methodological problems they've struggled with for three decades, e.g., whether Rorschach determinants *really* warrant the hypotheses attributed to them. For another, the findings that continue to fascinate doctoral candidates and/or nonclinicians questioning the validity of, say, the Rorschach, are rarely paid attention to by Rorschach practitioners.

What is a new, hopeful sign, is the emergence of more imaginative approaches to personality study stemming from personality theories and using projective techniques as the experimental medium. Rabin and Hurley report three such attempts that bear further investigation: the genetic scoring system based on Heinz Werner's perceptual theory, the assessment of primary process and control based on psychoanalytic theory, and a scoring system based on body-image theory. Lawrence Frank is quoted as suggesting it might be well to abandon older theoretical models upon which projective techniques have relied heavily, and draw upon recent work in cognitive theory, cybernetics, communication theory, and the results on culture and personality studies. Tellegen's chapter, dealing with the old, reliable MMPI, also suggests that new ways (factor analysis, actuarial tables, automated scoring, new scales) continue to be found to bring fresh understanding to the study of personality.

It is in Part III, the section devoted to Research, where the title "Progress" is best justified. The editors have chosen to evaluate developments in the rapidly emerging community mental health field as well as to give some systematic study to the burgeoning field of psychotherapy research. In the former, Leslie Wilkins succeeds admirably in defining some of the problems as well as the pitfalls when demonstration projects and community action-research are being planned and carried out.

Charles Truax and Robert Carkhuff take on the unenviable job of making sense out of all that is being published currently as psychotherapy research. Among the difficulties in evaluating psychotherapy, they remind us, is that psychotherapy is hardly a unitary phenomenon. Therefore, it is as fruitless to ask if it is helpful or not, as it would be to pose the question of whether drug therapy is helpful, and then conduct research by giving unknown kinds of drugs in unknown quantities to different kinds of patients with various complaints. Yet this is how psychotherapy research is often conducted. Their point is very well made. They then focus in on the essential issue, involving the exploration of those effective elements in psychotherapy that produce constructive behavioral and personality changes.

Part IV, the section on Application, is a potpourri of current problems facing the field of Clinical Psychology. Aging, problems of addiction, training problems in preparing future clinicians, mental health education, and the application of Clinical Psychology to industry are all included. The editors justify such an odd mixture of ingredients with the belief that all represent fields of major importance to the future of Clinical Psychology. Rather, it leaves the reader with some distress concerning the stew the profession is in at the moment.

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Endara, Julio, *Test de Rorschach: Evolucion y estado actual.* Quito, Ecuador: Casa de la Cultura, 1964. Pp. 323.

Dr. Endara, long the Editor of Archivos de Criminologia, Neuro-psiquiatria y Disciplinas conexas, has published many papers on the Rorschach, including a decade ago his Psicodiagnostico de Rorschach. His new book is an amplification and updating of his earlier text.

Quite versed in the recent American literature (but emphasizing theory and practice rather than research) as well as in European and Latin American approaches to the Rorschach, the author brings a broad perspective to bear on his presentation of administration, scoring and interpretation. Two chapters discuss mostly recent stands on projective psychology and the Rorschach. Chapters on administration and scoring summarize the systems advocated by several experts, including Loosli-Usteri, Canivet, Salas and Silveira who are not well-known in the U.S. Nine authors are compared in their scoring of locations and four in their mapping of the 10 plates. Eight systems of scoring determinants are summarized in tables with a discussion of their rationales.

Throughout the book the author's intention is clearly oriented toward presenting the criteria, formulae, critical levels and balances and interpretive suggestions provided by the best-known contributors to the field. Diagnostic and interpretive cues are documented according to their exponents.

For Spanish-speaking students, Endara's book provides a rich overview of the theoretical, administrative and interpretive aspects of the Rorschach, a healthy recognition of the diversity of opinion existing in the field. Though there is one set of Rorschach plates, there is obviously not a single Rorschach method when it comes to describing and evaluating what clients do with the stimuli.

An interesting "omission" caught this reviewer's attention. There is almost no attempt to set up nosological pictures for the Rorschach. Rather, the orientation is toward interpretation of dynamics and ego-functioning, an approach consistent with growing preferences for assessment rather than diagnosis. On the interpretive side Endara summarizes a good deal of material and many views. Some readers might wish for a more comprehensive synthesis than the author provides. Yet how many levels of sophistication can a reader hope to span in a single volume?

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Landis, Carney, Mettler, Fred A., (Eds.), *Varieties of psychopathological experience,* N.Y.: Holt, Rinehart & Winston, 1964, 484 pp., $8.75.

On March 4, 1962, Carney Landis died, but not before he had placed the semi-final draft of the manuscript of this book in the hands of the publishers but too soon to see it published. It was left to the impetus of Laura Landis, his widow, and to Fred A. Mettler, M.D., who edited the material, to see that the final manuscript appears in its present form.

There have been many articles and a few books printed which contain autobiographical material of abnormal and psychopathological experience but never in the breadth and scope of this book. This, by itself, makes the book unique. But this would not be enough to provide sufficient merit for recommendation. It was the ability of Landis to search out, to organize in a form most suitable to his purpose, and to interpret the selection of excerpts by persons who were able to describe their sufferings, their thoughts, their behavior during periods of disordered thinking.

Landis pointed out that for centuries we have been able to observe behavior and thus develop a fairly systematic organization. However, the "subjective experience that each individual person undergoes during the episode of abnormality" has been difficult to understand because "the individual finds that he lacks the words and the phrases in his everyday vocabulary which seem necessary to communicate his experience to others".

The author did not confine himself to psychotic episodes but also included the neurosis and the epileptic seizure. We find chapters devoted to the cause of mental derangement, disturbed perception, hallucinations, delusion, paranoia, seizures, and disorders of volition. Two other chapters which bear particular attention are devoted to the onset of psychopathological states and to what Landis called "Lucid Interval; Relapse; Recovery".

Landis provided assistance to the therapist in his chapter on Therapy and Therapists. He showed how patients react to therapy, whether or not they feel it is helpful, their resentments over the treatment in hospitals, and their complaints against society. He pointed out that his book is concerned with the patient's view of his condition — not the doctor's. Thus, we are afforded a different picture of the patient and his condition; something like being able to see for the first time the dark side of the moon. We know it is there but until now we have not been able to see it. And yet, having seen it we recognize that it has been only a fleeting view and still very much from a distance.

Each chapter concludes with a discussion which is more than a summary of the chapter's material. It serves to give meaning, to lend interpretation, and often to evaluate that which the chapter contained. A study of the references will give an indication of how extensively Landis traveled in his research to develop the material in the book. Finally, it must be added that this is not a book that can be used merely as a text in Abnormal Psychology nor is it confined to use as a casebook in conjunction wording with a text. It goes beyond both, yet lends itself to being a much needed supplement. As Landis indicated, he considered the manuscript more than just Readings in Subjective Psychopathology because while it provides a minimum of theory, the themes which run through the material lend themselves to a textbook form of organization.

At last we are able to do more than observe psychopathological behavior; we now can hear what the patient is saying, and understand a little more clearly how he feels. In some way, the patient, too, is making his own interpretations. Landis wished to bridge the gap in communication between the patient and the therapist which exists in mental disorder. Thus, in citing verbatim the words and phrases written by the patients about their condition, their thoughts, and their feelings we are afforded the opportunity to study that which the patient wished to convey or to communicate. Landis pointed out that there are certain common qualities in the pathological states, namely a disturbance in thought process, an uncertain emotional feeling state, and some degree of apprehension about one's ability to control voluntarily one's thoughts and emotions.

Beyond the fact that this book, as never before, collects a far greater number of reports by patients about their psychopathological states, there is the added factor that Landis showed us a great deal about the onset of psychopathological states, the course of mental derangement, and how, when, and why these episodes terminate. For this we owe Landis sincere gratitude. The book should add much to the knowledge of clinicians and students alike.

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ANNOUNCEMENTS

Society for Projective Techniques & Personality Assessment

1965 ANNUAL MEETING

September 3-7

FRIDAY, SEPTEMBER 3rd

11:00 a.m.—12:50 p.m.
Parlor D, LaSalle Hotel
Symposium: University Teaching of the Rorschach Test (Co-sponsored with Div. 12)
Chairman: William Shipman, Michael Reese Hospital
Participants: Julian Wohl, C. Wesley Jackson, Paul G. Daston, Martin Mayman
Discussant: Albert I. Rabin

1:00 p.m.—4:50 p.m.
Parlor A, LaSalle Hotel
Board of Trustees Meeting
Chairman: Albert I. Rabin

SATURDAY, SEPTEMBER 4th

12:00 p.m.—2:50 p.m.
Parlor I, LaSalle Hotel
Annual Luncheon, Business Meeting and Presidential Address
Chairman: Walter G. Klopfer
Address: Albert I. Rabin
"Motivation for Parenthood"

SUNDAY, SEPTEMBER 5th

4:00 p.m.—5:50 p.m.
Wabash Parlor, Palmer House
Symposium: The Cross-Cultural Study of Psychological Processes
(Co-sponsored with Div. 9)
Chairman: Bert Kaplan
Participants: Douglass Price Williams, David Gutmann, George DeVos

MONDAY, SEPTEMBER 6th

10:00 a.m.—12:00 p.m.
Parlor D, LaSalle Hotel
Symposium: Creative Documents and Life History (Co-sponsored with Div. 10)
Chairman: Frederick Wyatt
Participants: Norman Holland, George C. Rosenwald, Neil Friedman

TUESDAY, SEPTEMBER 7th

11:00 a.m.—12:50 p.m.
Illinois Rm., LaSalle Hotel
Symposium: Problems in Personality Theory Approached with Projective Techniques (Co-sponsored with Div. 8 and Div. 12)
Chairman: George C. Rosenwald
Participants: Seymour Fisher, Ernst Prelinger, Jerome M. Singer, Sylvan S. Tomkins
Discussant: Gardner Murphy

SYMPOSIUM

The George Washington University School of Medicine will host a symposium on the nature, causes and prevention of suicide. It will take place on October 14, 1965 and will be open to all professional persons who have a clinical or scholarly concern with suicide. The program chairman is Leon Yochelson, M.D., Department of Psychiatry, 901 23rd Street, N.W. Washington, D.C.

WORKSHOP

The First Annual Workshop in Psychodiagnostic Evaluation will be held at Occidental College, 1600 Campus Road, Los Angeles, California, from September 9th through the 14th, 1965.

The emphasis of the workshop will be directed towards the utility of the psychological battery as a treatment guide. The first three days will cover basic rationale, evaluation, and communication by report. The second half will consist of presenting patients' of practicing therapists, allowing them, as well as the participants and faculty, to critique the meaningfulness of the findings.

The faculty includes Harold A. Goolishian, Ph.D., Walter Klopfer, Ph.D., Bertram A. Weiss, Ph.D., and I. Jay Dunn, M.D.

The fee for the six-day workshop is $90.

For further information write to Bertram A. Weiss, Ph. D., 715 South Parkview, Los Angeles, California 90057.

REPRINTS

JOURNAL OF PROJECTIVE
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BOOKS FOR REVIEW

The following books are available for review. If you would like to review one of them, please write to the Executive Editor, Walter G. Klopfer, Ph.D., 7111 S.W. 55th, Portland, Oregon 97219.

Arnheim, Rudolf, Picasso's Guernica: *The genesis of a painting.*

Beck, Samuel J., *Psychological processes in the Schizophrenic adaptation.*

Blank, Leonard, *Psychological evaluation in psychotherapy: ten case histories.*

Clinard, Marshall B., ed., *Anomie and deviant behavior.*

Crowne, Douglas P., & Marlowe, David, *The approval motive.*

Heath, Douglas H., *Explorations of maturity.*

Hendin, Herbert, Baylin, Willard, & Carr, Arthur, *Psychoanalysis and social research.*

Henry, George W., *Masculinity and femininity.*

Holt, Arthur G., *Handwriting in psychological interpretations.*

Kornrich, Milton, Ed., *Psychological test modifications.*

Lindzey, Gardner, & Hall, Calvin S., *Theories of personality: Primary sources and research.*

Marmor, Judd, ed., *Sexual inversion: The multiple roots of homosexuality.*

Saarinen, Pirkko, "Developmental results in a block sorting test." *Reports from the Psychological Institute.*

Smith, M. G., *Stratification in Grenada.*

Stekel, Wilhelm, *Peculiarities of behavior.*

Szekely, E., "Basic analysis of inner psychological functions." *The British Journal of Psychology.*

Taylor, Calvin W., ed., *Widening horizons in creativity.*

Thomas, Caroline Bedell, Ross, Donald C., & Freed, Ellen S., *An index of Rorschach responses.*

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Editorial

It is just one issue more than ten years ago that the last occasion arose to announce (?) a notable change in the personnel of the editorial staff of the *Journal*. With this editorial in the March issue in 1955, the present Executive Editor, Dr. Bertram R. Forer, took over the *Journal* from his predecessor, Dr. Mortimer Meyer. He took it over in good shape, and, therefore, it will mean a lot that everything I said ten years ago about Mortimer Meyer can now literally be repeated about Bertram Forer, with the one significant change – that he covered about twice as long a period of fruitful service.

The *Journal* has continued to climb to a circulation of more than 2,400 subscribers, distributed even more solidly over all five continents, and its growing scientific prestige begins to outline the field of "projective techniques and personality assessment" more clearly than any other professional journal in any language.

The many personal friendships Bert Forer developed over this ten-year period and his warmth and loyalty would seem to make him indispensible if he had not begun, two years ago, to prepare for this moment by smoothing out the administrative functions of the *Journal* staff (with the loyal help of the Assistant Executive Editor, Jeanne M. Reitzell, and the staff of the Society headquarters, which also transferred to southern California last year). Finally, by selecting and preparing his own successor, which unifies (without my influence, but certainly to my great satisfaction) the family names of the Editor and Executive Editor.

There are two other events, sad ones, which should be mentioned. On April 27, 1965, one of our colleagues, who, incidentally, was one of the first American colleagues to take up the torch for projective techniques, Dr. Michael B. Dunn, was stricken by a heart attack while he was attending one of his patients. He was equally liked by his psychoanalytic colleagues as he was by his friends in the projective field, and he will remain one of the unforgettable personalities for everybody who came in contact with him.

We have to go further afield, geographically and historically, to cover the second event. Dr. Med. Walter Morgenthaler, one of the few surviving personal friends of Hermann Rorschach, who edited the *Psychodiagnostic* for him, died on April 1, 1965, in Bern, Switzerland. Shortly before his death, Dr. K. W. Bash edited for the Verlag Hans Huber, Bern, *Gesammelte Aufsätze*, by Hermann Rorschach, in which Morgenthaler describes in detail the period of their close cooperation. Mrs. Klopfer and I spent unforgettable hours with him during the Psychotherapy Congress in Zürich in 1954. We will certainly contribute more to his memory in one of the future issues.

BRUNO KLOPFER
Professor of Psychology (Ret.)
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President's Column

My main purpose in writing this column is to inform the membership concerning a number of issues which were discussed by the Board of Trustees at its mid-year meeting, March 13, 1965, in New York City. Some of these issues involve immediate decisions about the day-by-day operation of the Society; others deal with long-range projections concerning the future of our organization.

The overwhelming majority of respondents to the referendum, concerning the change of name of the Society, have ratified the new designation – The *Society for Projective Techniques and Personality Assessment*. Thus, the new name will correspond to the name of the Journal, which was changed several years ago, and will reflect the broadened scope of our goals and interests.

The last decade has involved great emphasis upon psychotherapy, as a major professional activity, and a corresponding de-emphasis of personality assessment and diagnosis. The amelioration of neglect of diagnosis, and the undertaking of therapeutic endeavors without personality assessment, requires a unified effort on the part of all persons concerned with the diagnostic function, be it primarily projective or non-projective in nature. The Society's concern is with personality evaluation by means of a wide variety of methods, representing the entire spectrum, and different levels of awareness. It is our hope that all persons who are engaged in clinical practice and research with assessment methods, and, especially those who teach them will become affiliated with the Society and strengthen the practice and training in psycho-diagnosis.

In view of the threatening divisiveness in the American Psychological Association and in order to facilitate the annual programming of the Society, an important question was raised at the Board's meeting: "Should the Society become a division of the American Psychological Association?" Despite many advantages that may accrue from such a move there are problems, especially relating to loss of autonomy, that must be seriously considered. The Board empowered your President to explore this possibility with the leadership of the APA. We would like to anticipate fully the consequences of such a step, and discuss it more thoroughly once the relevant information has been collected. I should like to take this opportunity to invite the membership to enter this dialogue and communicate directly with me or write "letters to the editor" of the Journal.

The Society's Annual Program, in conjunction with several APA divisions, promises to be an interesting one. Several symposia on vital issues and ongoing research have been scheduled.

In addition to the scientific program, the annual luncheon, and business meeting, there will be an award presentation to an outstanding person in the field of projective techniques. The award will be made at the business meeting. I hope you will be there.

A. I. Rabin

Half-Hidden Influences on Psychological Testing and Practice

STEPHEN A. APPELBAUM AND RICHARD S. SIEGAL
Menninger Foundation

Summary: Attention is called to some half-hidden influences on the tester's practice which arise from the social, professional, and interpersonal contexts in which he works. The ubiquitousness of these influences and fruitful directions in which to look for them are indicated. The sources of such influences include: Those stemming from extraordinary use of tests; from special aspects of the patient; from the process of communicating test findings and the settings in which this takes place; and those stemming from personal professional motives. Psychologists are encouraged to include self-conscious consideration of these kinds of half-hidden influences among the technical and intrapsychic influences with which they work.

Even among mature professional workers a body of information exists which everybody knows but avoids talking about publicly. As people leave a group meeting, for example, they often talk in hushed and familiar tones about what "really was going on," alluding to facts which lie somewhere between hidden and public. The "official" sources of error in diagnostic psychological testing have long been recognized as having to do with administration, scoring, and interpreting. For a long time "unofficial," but known, were the tester's internal propensities. Roy Schafer (1954) called attention to the influences on the testing relationship of voyeuristic, oracular, autocratic, and saintly attitudes of the tester as one aspect of the general problem of countertransference. Such factors have since seemed more explicit and thus teachable. Attention is called herein to some other potential influences on the tester which, though they interact with his intrapsychic trends, arise from the social, professional, and interpersonal contexts in which he works. It is hoped that calling attention to these influences will help minimize their dangers and maximize their constructive possibilities. Though written with reference to psychological testing, and of some problems unique to it, many of these issues are similarly applicable to all clinical interaction.

INFLUENCES STEMMING FROM EXTRAORDINARY USE OF TESTS

Ordinarily the clinical psychologist tests with the belief that his findings will aid the patient. Certain situations require departure from this accustomed model, and thus pose novel problems.

The tester is in a difficult position when he is asked to predict specific overt behavior, for example, suicide or homicide. For behavior depends not only on intrapsychic conditions, which the tester may know, but also upon events and opportunities external to the patient which neither the tester nor anyone else can fully predict. Also, while impulses and defenses are readily identifiable through tests, their quantitative relations and relative strengths are complex and variable matters. Yet, especially when the behaviors are likely to stir strong emotions and gain publicity, the tester often feels a requirement from the referrer, explicit or implicit, that the tester should be able to foretell whether a particular event will happen.

Under this pressure some testers are excessively conscientious, giving more tests, hedging, being indecisive. Others sharply limit themselves to describing the patient, even to the point of talking exclusively the language of tests and personality theory, the better not to commit themselves in the language of practical action and prediction. The likelihood of danger to the patient or society may be exaggerated in order to minimize the risk of "being wrong." Less experienced testers, especially, may be influenced by cultural stereotypes of hospitals and mental patients and may thus feel fear and guilt in describing the patient in such a way as to contribute to his hospitalization. Or, on the other hand, they may be intrigued by the sense of power implicit in having a hand in such a major, or dramatic, decision.

The tester may be asked to examine a patient on the initiative of someone other than the patient, sometimes even against the patient's will. A company may want "proof" that an employee is unfit to pilot a plane. A religious group may desire help in selecting ministers or missionaries. In such situations the tester may be caught in a web of divided loyalties and prejudices for or against industry, labor, the rights of the individual as against the community, etc. He may slough off such duties as beneath his professional dignity, or conversely he may relish opportunities to participate in decisions of a kind ordinarily not open to him. In his contacts with the "patient" he may be made unsure of himself by the ambiguity of the situation, part consultant, part detective, part informer, part savior.

When a patient is examined in relation to a legal question, testers may find themselves thinking as lawyers or judges rather than as clinicians, enjoying this style of thinking and deserting their impartial clinical attitude. They may be anxious about the possibility of presenting findings in court. Common ways of coping with such anxieties are overspecification of test data and too great an effort to limit one's inferences to those based on evidence that would seem plausible to laymen.

Some situations create strong suspicions that the patient may attempt to "put one over." This is especially true when a disability determination or question of compensation is involved. In these instances, the psychologist may feel pressured to become a private eye. The referrer or the psychologist may see the task as finding out "the truth," implying tests are a kind of infallible X-ray. In one case conflicting stories between a husband and wife resulted in referral for examination of the wife. The psychologist felt a strong expectation that he be able to tell whether she was lying, with the result that he felt uncomfortably academic and impotent in merely describing the psychological situation of the patient which might explain her version.

INFLUENCES STEMMING FROM SPECIAL ASPECTS OF THE PATIENT

While the psychologist may try to do a conscientious job with each patient, he is human and thus inclined to be more "on his toes" with some. For example, like most of us, he probably is fascinated with famous people. Especially if he fantasies the possibility of being in the spotlight along with the patient, he is likely to invest himself heavily in the case. At each choice point, whether to add a test to the battery, make another inquiry, take another note, put aside further time for reflection and dictation, he makes the more demanding choice, even should it be excessive. Similar overinvestment may arise when the patient has an occupational interest which is particularly intriguing — artist, athlete, politician. Patients also tend to be specially fascinating when they have done something sensational, provocative, or repellent—murderers, child molesters, rapists, necrophiliacs. All these call forth reactions which may be helpful in insuring that the clinician employ his skills with special determination to extract and analyze his data to the utmost of his ability. Occasionally, however, such sensational cases dictate "special" ways of working which can be detrimental.

When patients are "creative," colleagues in the mental health professions, or from different cultures, some testers tend to dispense with their knowledge of human behavior, to throw out the rule book and use new standards. Responses which in the ordinary run of patients would indicate disorganization are readily "explained away" as artistic license, psychiatric sophistication, or cultural difference. While one should not overlook the effects of cultural or professional influences, one can easily overestimate them.

INFLUENCES STEMMING FROM THE PROCESS OF COMMUNICATING TEST FINDINGS

Groups and Atmospheres

Working with any group such as a psychiatric team plunges one into the dynamics of the group which are usually extraneous to the work at hand. Members may, for example, take positions in regard to a particular patient or issue more in response to intra-group tensions than to clinical judgment. Groups vary in formality, cohesiveness, purpose, and values. All of these variables will affect the work of the tester. For example, when there is an atmosphere of formality (perhaps contributed to by increased size of the group, presence of visitors, or connotative titles such as "grand staff"), there is increased tension in the situation. Such tension can bring out the best in testers who are otherwise inclined to lag in their efforts but can harm the work of those who fumble or become inhibited in response to anxiety. Usually, the more the tension, the less the reflectiveness, and the less the reflectiveness, the more the dogmatism.

At clinical conferences the felt demands of clinical practice sometimes clash with teaching objectives, or a reflective approach in general. Stereotyped thought and action, with discussion and decision dictated only by the narrowest aspects of clinical requirements, proceeds on a medical model of a relatively standard body of knowledge applied in a relatively objective fashion to a relatively standard kind of disease. This can result, for example, in a psychologist being called upon to assess "the patient's motivation" as if this were an entity which could be assigned a quantity. Overlooked would be the kind of question all examiners ought to ask: Under what conditions a patient can be enlisted for what kind of work. A tester unaware of pressures on his colleagues toward action, and their consequent deemphasis of the abstract and systematic, may find himself and his work increasingly isolated from their interests and purposes, or reduced to frustration as his enthusiasm for the intellectual quest is completely brushed aside.

Referrals and Consultants

Whenever he examines a patient and prepares to present his findings, the tester has in mind an image, or many images, of the potential recipients of his report—whether these be specific individuals, groups, or institutions. The relationship of the examiner to these inner images of his listeners will, of course, be colored by the tester's own styles of relating himself to authorities, subordinates, peers, friends, enemies. These images, compounded of the tester's inner tendencies and objective, external fact, may lead to or influence a kind of implicit dialectic in the examination. For example, anticipating that others will be strongly holding an opinion with which he disagrees, the tester may feel that extra force is necessary to pull back the pendulum. His implicit expectation may be that the synthesis between his thesis and the strongly stated antithesis will be forthcoming in the conference or when his report is read and digested. If the tester is competitively inclined, he may exaggerate those aspects of the tests which seem to run counter to the opinions of others, trying to "one-up" them. Or, conversely, a strongly held thesis may put off a timid tester from analyzing his tests objectively enough to allow contrary formulations to emerge.

An adolescent girl with a long history of sexual experience, including giving birth to an illegitimate child, was examined. Her apparent overemphasis on physical attractiveness and fashionable grooming furthered the surface impression of narcissistic character disorder. The tests seemed to indicate, however, latent possibilities for reflectiveness, control, conscientiousness, and aspirations to be a wellorganized and appropriately conventional young woman. The tester inwardly anticipated the accusations of "countertransference," and had to struggle free from toning down his optimism or, through counter-reaction, exaggerating the patient's assets.

To a certain extent the interests, values, and personality of the referring person or of the consultant can operate as one pole in the tester's inner dialectic. A consultant who seems particularly interested in dynamic-genetic data, as contrasted with assessment of ego functioning, may sometimes elicit a reaction from the examiner which results in an attempt to overcompensate for the consultant's bias. Should a consultant on the other hand emphasize diagnostic categories, ego functioning, etc., the tester may try, perhaps unwittingly, to counterbalance this by delineating the phenomenological and dynamic aspects of the case. These dialectical considerations can round out the picture of a patient or, if the struggle between thesis and antithesis occurs without the tester's awareness, can result in overemphasis of one area at the expense of another. Where a consultant seems so able and balanced in his approach, so cognizant of all the relevant data that the psychologist feels there is little for him to say, he may be encouraged toward even greater refinement. But he may also exaggerate any novel inference out of a somewhat desperate feeling that he must have *something* new or different to say.

Although psychologists can adopt their own examination objectives, the nature of the referral received by the psychologist has a tendency to set the direction of a particular examination. A referral for testing which conveys the impression that "everyone is tested here so let's go ahead and get it done" tends to create a drearily routine set for the task. A referral, though it be for routine testing, which sketches the present clinical understanding of the case and orients the tester toward what it might be useful to look for is likely to engender a spirit of inquiry.

If the referring physician or consultant or tester, himself, has a particular interest, the tester may be inclined to focus on this aspect of the patient, possibly misplacing his emphasis. Or, he may be cowed by a feeling that his understanding must inevitably be inferior to that of the expert.

Institutional Standards and Procedures

The point in the total examination at which testing occurs can be an important determinant of how it is done and presented. If the testing takes place when little is known of the patient, there is a push toward indiscriminate collection of information, using the tests to formulate clinically relevant questions as well as answers: *e.g.*, "Should the team try to motivate the patient toward psychotherapy?" "Should the team be thinking of hospitalization, and preparing the patient and family for this?" Such crucial organizing information is most eagerly sought early, at a time when the psychologist knows least about the patient, and his conclusions are most tentative. In his attempt to cope with this disparity between supply and demand of information, he may offer his hypotheses, indicating the kind of evidence and tentative degree of confidence in his conclusion. Or, if he feels confident enough, he may help to chart the remainder of the examination by coming to early, perhaps even heretofore unconsidered, conclusions, for example, brain-damage, surprisingly high or low intelligence, imminence of psychosis. This kind of situation, however, places a strain on the professional modesty of the psychologist and may elicit either unduly timid or unduly brash statements. By contrast, if the testing takes place when much is already known about the patient, the psychologist may find himself straining to make a novel contribution, and ignoring the importance of confirmatory and enriching data.

The amount and kind of information the tester gathers ought to be related to the practices of the setting where he works. If the only possibilities are custodial care or electric shock, a refined assessment of ego functioning and genetic-dynamic formulations may be more ironic than helpful. Contrast that situation, however, with an institution where a range of psychotherapies are available, where it is considered that complete psychological analysis is an indispensable part of the examination and record, where decisions about the patient will occur at various points in his treatment and where test findings may be re-evaluated for the light they can shed on the current situation. Under these circumstances it may be that there is no such thing as surplus data. If through pride and conscientiousness, backed by adequate facilities, an institution sets itself the ambition of never being wrong, then the tester is required to set high the amount of information he gathers before "deciding." If the local attitude is more easy going, or if facilities or staff are inadequate, psychologists can be expected to make do with little information, reaching conclusions which in another setting would be considered premature.

INFLUENCES STEMMING FROM PERSONAL PROFESSIONAL MOTIVES

In addition to his intention to do his job well and to serve effectively the interests of his patients, the tester is motivated to present himself and his work so as to earn respect and admiration. When he is insufficiently aware of this drive, it can take subtle forms and detrimentally affect his work.

Some testers feel that writing is synonymous with "literary." The "poetic" rendering of the uniqueness of the patient becomes prized for itself, the purposes of the testing sometimes getting lost. Inferences may be made or implied for their dramatic value. The tester tests while "writing lines" in his mind, to the detriment of examining. Other testers feel in writing a demand for formality, impressiveness by way of pontification or "inside" technical lore. Their reports tend toward stereotypy, jargon, and stiltedness. Still others react to the demand of the written work by feeling a pressure for completeness. For them the weight of the pages seems evidence of ability, so they set themselves the task of including everything, often substituting data for thought.

Reports given orally to team meetings or conferences often take on for the tester (as well as other participants) the quality of performer and audience, thus becoming both threatening to, and promising of, self-esteem. The way conferences are organized imposes general influences on any person's idiosyncratic style of managing exhibitionistic drives. Conferences of people unused to each other, or with prestigious figures in attendance, or led in an authoritarian way tend to be formal. Often, during such conferences each participant is asked in turn "about" the patient. Without a particular issue at hand,

and with all eyes turned toward him for his "presentation," the requirement is, or seems to be, that a rounded and complete picture of the patient be presented. The premium seems to be put on quantity and neat fitting together of data. By contrast a group comfortably used to one another may talk informally, each participating as he feels he has something to offer to the particular issue being discussed at the moment. Personal pressure is minimized, and while the tester relinquishes the opportunity to spell out the whole psychological picture himself, he is enabled to function more as a consultant, addressing himself to relevant questions as he has anticipated and tested for them.

Several kinds of situations implicitly set up competition between the psychologist and someone else. When previous tests are available, there are the makings of competition between the other t[illegible] and oneself. Especially if treatment has not gone well there may be a tendency to assume the pre- ious tester wrong, with consequent underestimation of one's data which are consonant with the previous point of view and overestimation of data supporting a new formulation. In cases where a question of somatic ymptoms is present the tester may find himself caught up in competition with the examining physician, and may be tempted to out-physician the physician, speculating baldly on casual connections between dynamic trends and symptoms, so easy to do when it is difficult to check such speculations.

What is to be done with the tester's findings after the presentation carries its own distinctive possibilities for influencing his work? When the patient is to be treated at the examining institution, one's own col- eagues will be in a position to check on his accuracy. The tester may react to such a situation with increased effort and care, perhaps more than necessary. Or he may become ultracautious, hedging his comments irrespective of the convincingness of his evidence, perhaps rationalizing his being non-committal as a properly scientific attitude. When findings are sent elsewhere, the single document which he is preparing may represent, in the tester's mind, a definitive measure of what he can do. The reputation of the institution to which the report is sent and the people the tester may fantasy will read it may elicit urges to be educative, to demonstrate superiority, or to present himself as if applying for a job.

The status accorded psychologists in a given setting and the professional attitudes of colleagues may directly influence the quality of his work. If testing is considered a second-class function, used to earn bread and butter, or as an entering wedge into the practice of psychotherapy, impetus to do the job well and to present it effectively may be inhibited. One reaction may be a compensatory arrogance, pedantry, and unwarranted invasion of the professional responsibilities of others. A reaction of submissiveness carries the danger of abdication of the creative and novel possibilities of testing. In a sense all we have said here can be seen in relation to the psychologist's sense of who he is, what he does, and how he may be useful. It is not a matter either of subserviently "knowing one's place" (a construction which some psychologists tend to put on any discussion of the tester's role), or imposing an image through "political" maneuvering or exhortation. Rather, psychologists might profit from sharpening their eyes to the covert and overt expectations of others in order to deploy their skills most effectively.

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A Re-evaluation of Copied and Recalled Bender-Gestalt Reproductions

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Summary: This study was designed to compare the copying and recall performances of the Bender-Gestalt of 80 psychiatric patients, falling into five diagnostic groups. To obtain a quantitative measure of the copying performance the Pascal and Suttell scoring system was utilized; however, lack of scoring items for design A and no really satisfactory recall scoring system led to a revised system which resulted in a significantly more discriminating system than Olin and Reznikoff's. Also the study yielded various quantitative and qualitative differences between the five diagnostic groups, the most significant being between the organic and the functional (schizophrenic, depressive, neurotic, and character disorder) sub-groups. Thus performance on the Bender, especially the quantitatively scored recall performance, can be used as a valid diagnostic instrument to differentiate organic from non-organic patients. Yet in each sub-group the various aspects of the Bender performance (copying score, recall score, and number of designs recalled) appeared to be interrelated, while the time element was found to be an independent factor which also did not help to differentiate the diagnostic groups. Performance on the various designs fell into a definite pattern, particularly on the recall phase.

The present study is a comparison of the copying and recall performances of the Bender-Gestalt of five diagnostic groups. It is in part a replication as well as a continuation of a previous study (Armstrong, 1963); however, this time the Pascal and Suttell (1951) scoring system was employed for all test protocols. Again the time spent in copying each design was taken into consideration, now in order to compare it with the quality of copied and recalled designs. Further, by obtaining such other data as age, education, WAIS IQ scores, and diagnosis, additional relationships could be investigated. Finally since it had become apparent that formerly used scoring systems of recall productions were found wanting, a revised system was developed.

A survey of the literature reveals that during recent years the Bender-Gestalt recall has been the object of various investigations. The recall patterns of a variety of clinical groups have been compared, finding both quantitative and qualitative differences between organics, schizophrenics, neurotics, and normals (Tolor, 1956, 1958, Reznikoff & Olin, 1957, Olin & Reznikoff, 1957, 1958, Stewart, 1957, Gobetz, 1953). Several scoring systems have been developed to quantify recall performances (Gobetz, 1953, Tolor, 1956, Stewart & Cunningham, 1958, Olin & Reznikoff, 1957); however, none of these have been really satisfactory in this writer's opinion. Studies investigating the relationship between intelligence and Bender recall have shown fairly consistent correlations (Tolor, 1956, Aronson, 1957). No significant relationships, however, have been established between Bender recall performance and time spent in copying or recalling the designs (Olin & Reznikoff, 1958, Armstrong, 1963). Since practically all recall studies have found a significant difference in remembering designs 3 and 4, a possible bowed serial learning effect was speculated and investigated by Goodstein, *et al.*, (1955) and by Armstrong (1963), but in both studies it was concluded that difficulty of designs rather than serial position of presentation account for the infrequent recall of these two designs.

The current experiment included 80 subjects all recently hospitalized at the New York Hospital, Westchester Division, who had been consecutively referred for psychodiagnostic testing. As part of a standard battery each patient was given the Bender-Gestalt, both the copying and the immediate recall phases. The time spent copying each design was recorded, as was the total recall phase. The copied designs (1 through 8) were scored by the Pascal and Suttell method, while a revised scoring system was used for scoring the recalled productions, as well as design A, which for some reason is not included in the Pascal and Suttell system. The data obtained were statistically compared, also utilizing such additional information as age, education, WAIS scores, and diagnosis of each subject. The information dealing with this aspect of the sample is given in Table I.

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[1] Previously at New York Hospital, Westchester Division, White Plains, N. Y. The author expresses her thanks to Mrs. Evelyn Fraker, Research Assistant, for her statistical help.

Each of the 80 Ss could be classified by means of test data, interview, and anamnesis into one of the following diagnostic categories: organic, schizophrenic, depressive, neurotic, and character disorder. A few dubious cases had to be eliminated. Most of the resultant five groups were fairly evenly divided as to sex, and the total sample was almost exactly divided, i.e. 39 men and 41 women. However, age-wise the five groups varied significantly (analysis of variance F ratio 10.46, p = .01), the organic and the depressive patients being older than the other three groups. Even though according to Tolor and Schulberg's (1963) review of various studies no significant relationships between Bender-Gestalt performance and age had been established, to rule out any possible effect of age on Bender performances, the present data were compared by using an analysis of covariance, thereby holding the age factor constant. The current intellectual functioning of the diagnostic groups, as measured by the WAIS Full Scale, was significantly different (analysis of variance F ratio 6.40, p = .001), yet one can still assume that the lowered intellectual performance of the organic patients (*t* significant at the .001 level, Table IV) can be ascribed to the same process as that lowering their performance on the two phases of the Bender. According to Tolor and Schulberg (1963, p. 169) "ego impairment will similarly affect both intellectual functioning and visual-motor coordination, leading to substantial relationships between the two variables." The lowering of intellectual functioning seems even more related to the recall (r —.48) than to the copying phase (r —.28) for the total sample. The total N had an average educational background of 1.35 years of college; the difference of about two and a half years of education between the means of the five subgroups did not significantly differentiate these diagnostic groups (analysis of variance F ratio 0.85). These findings led to the conclusion that the five subgroups were originally of equal intellectual capacity, and therefore intelligence was not held constant when doing the statistical comparisons.

Reviewing the literature, several scoring systems for the Bender recall performance were found. Stewart and Cunningham (1958) devised a rather minimally described system which they employed on very small, unmatched groups. Gobetz (1953) presented no definite measures in his

TABLE I – Sex, Age, Education, and WAIS IQs of the Five Diagnostic Groups and Total N

Diagnosis	*Male*	*Female*	*Age*	*Education*	*WAIS V*	*P*	*F*
Organic	7	6	48.00	13.85	106.92	93.69	101.31
Schizophrenic	18	14	25.72	13.31	117.53	104.66	112.66
Depressive	3	4	53.57	11.14	117.17	106.00	113.83
Neurotic	3	8	33.00	13.36	120.45	117.18	120.18
Character Dis.	8	9	29.41	13.94	122.65	111.42	118.94
Total	39	41	33.56	13.35	117.27	106.15	113.28

TABLE II — Revised Scoring System for not Recalled Bender Designs

	Number of error items	*Highest possible error recall score*	*Highest obtained error recall score*	*Adjusted non-recall score*
A	15	66	18	22
1	10	46	19	23
2	13	52	10	20
3	13	65	28	25
4	13	64	15	24
5	13	54	16	21
6	13	59	19	22
7	11	51	20	23
8	12	53	20	22

study. Tolor (1956) only counted whole and partially recalled productions. Olin and Reznikoff (1957) expanded the Pascal and Suttell system by including 19 items which add up to a total of 88 possible points for scoring design A, which is not included in the Pascal and Suttell scoring system. It is felt that the scoring for this design is out of proportion with the scoring for the other eight designs, their possible scoring categories ranging from only 10 to 13 items, with ultimate totals of 46 to 65 points. Thus the scoring for design A was modified, ending up with only 15 items which would add up to a total of 66 points.[2] Both the original and the recalled A designs were scored by this revised method. The Pascal and Suttell configuration scores were not employed, and therefore raw scores, rather than Z scores were used. Further it was concluded that scoring only the designs that were attempted to be recalled was unfair, especially to those Ss who would try to recall many designs but might reproduce them rather poorly, for they thereby obtained a higher, i.e. pathological, recall score, while those Ss who only attempted to recall and reproduce one or two designs would obtain a lower, i.e. comparatively normal, recall score. Therefore a new system for scoring designs missing was developed on a rather empirical basis. That is, the highest (worst) possible score of a design was divided by the number of possible items for that particular design, and this quotient was then multiplied by 5, for it would then fall in line with the obtained scores in that it would be just a little higher than the worst score obtained by any of the 80 Ss attempting to recall and reproduce said design. Table II represents these figures.[3] The rank correlation between these adjusted non-recall scores and the highest possible error scores is +.38, suggesting a positive relationship. The recall performances were scored both according to Olin and Reznikoff's system, with the exception of the revised design A score, and according to the revised system mentioned above. These two sets of scores will be referred to as the "old" and the "revised" recall scores.

RESULTS

The results of the copying and recall scores, number of designs recalled, and total time spent copying are recorded in Table III. Upon inspection it appeared that the schizophrenics, the neurotics, and the character disorders consistently had a better copying and recall performance, a shorter copying time, and recalled more designs than did the organics and the depressives. The organics showed much variability in copying, but were consistently poor recallers, while the neurotics were consistently good copiers but showed great variability in recalling, which may be attributable to the interfering anxiety of some and the compulsivity of others when under increased stress.

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[2] The complete revised scoring for design A can be obtained from the author upon request.

[3] The complete revised scoring for recalled designs 1 through 8 can be obtained upon request.

TABLE III — Means of Copying and Recalled Bender Performance of Five Diagnostic Groups and Total N

Diagnosis	*Copying Score*	*Copying Time*	*Number of Designs Recalled*	*"Old" Recall Score*	*"Revised" Recall Score*
Organic	67.54	6'15"	3.85	39.15	154.23
Schizophrenic	33.78	4'29"	6.00	30.59	99.41
Depressive	42.57	5'50"	5.57	43.00	121.14
Neurotic	35.18	4'37"	6.09	29.00	95.73
Character Dis.	37.53	3'35"	6.06	28.59	95.70
Total	41.02	4'38"	5.64	32.42	108.92

The differences between the means of the five diagnostic groups were significant, at least on the .01 level, for all of the measures with the exception of "old" scoring system, which was not significant.[4] However, since it had been established that the five groups were of significantly different ages, and since age was shown to be correlated with the Bender performance, especially with recall (r = .49), analyses of covariance, holding age constant, were computed, in order to determine if the significant findings of the analyses of variance would still hold up. The resultant computations were significant at the .01 level for each comparison, except the time spent copying.[5] Thus even when the compounding effect of age was ruled out, the five diagnostic groups still performed differently as far as quality of copying and recalling designs, and number of designs recalled were concerned, but not as far as time spent copying. Thus the time factor can be considered an independent factor.

In order to determine the specific diagnostic group differences all possible *t* test comparisons were computed (Table IV). Since the age factor could not be held constant on the *t* tests, all patients age 60 and above were eliminated, thus reducing the total N to 72, the organic, neurotic, and depressed groups losing 5, 1, and 2 subjects respectively. It was found that the organic group copied the designs more poorly, recalled a smaller number of designs, and executed the recalled designs less well (but only when using the "revised" recall scoring system) than any of the other four diagnostic groups. In fact, the recall performance of the organic group revealed very little overlap with any of the other four groups; only 21% of the non-organic patients had as high or higher a recall score than the lowest recall score — 130 — obtained by any organic patient. Thus using 130 as a cutting point, one can be about 80% certain that a respondent with such a score or higher is suffering from a brain syndrome. Neither the copying score nor the "old" recall score revealed such a definite differentiation between the performance of organic and non-organic subjects.

Product - moment correlations between copying scores, copying time, "old" recall scores, "revised" recall scores, number of designs recalled, age, and Full Scale IQs for the total sample and the five diagnostic groups were computed.[6] For the total N almost all correlations were significant, most at the .01 level. Many of the correlations for the five subgroups revealed similar relationships. A most consistently high inverse correlation was revealed for the "revised" scoring system and the number of designs recalled, while the "old" recall scoring system showed no consistent relationships with the number of designs recalled, there being only one exception, the organic sample obtained a very high, positive correlation, which therefore implied that Ss recalling few designs got a low (non-pathological)

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[4] All analyses of variance data can be obtained upon request.

[5] All analyses of co-variance can be obtained upon request.

[6] All correlations can be obtained upon request.

TABLE IV — *t* Ratios for Bender Performance, Age, and WAIS IQs of Five Diagnostic Groups, Omitting All Ss Above Age 60[a]

	O/S	O/D	O/N	O/CD	S/D	S/N	S/CD	D/N	D/CD	N/CD
Copying Score (72)	3.42***	2.98*	3.38***	5.11***	1.00	0.63	0.51	0.96	0.16	0.52
"Old" Recall Score (72)	1.20	0.26	1.40	1.39	1.65	0.51	0.42	1.84	1.99	0.18
"Rev" Recall Score (72)	6.56***	1.84	4.02***	6.34***	2.40*	0.54	0.44	2.12*	2.60*	0.27
Number Recalled (72)	3.62***	3.12**	2.51*	3.02**	1.27	0.29	0.12	0.91	1.02	0.19
Age (80)	4.19***	0.65	2.09*	3.13**	3.97***	1.37	1.06	2.38*	3.22**	0.60
WAIS IQ (72)	5.10**	0.42	4.10**	4.37**	0.94	0.91	1.69	0.74	0.72	0.13

[a] Except for Age Ratios
*** = Significant at .001 level
** = Significant at .01 level
* = Significant at .05 level

recall score, while those recalling many designs got a high (pathological) recall score. These seemingly illogical findings were only obtained when employing the "old" recall system, not with the "revised" recall system. Still the two systems have a significantly high positive correlation (+.33), suggesting that they do measure similar aspects, but that the new system may do so in a more refined and meaningful manner.

Inspecting the different diagnostic categories, the organic and depressive patients revealed no significant relationships between the copying and recall performances; however, for the other three diagnostic groups it was indicated that if a S did well on the copying phase, he would also do well on the recall phase. Although there was an indication for the total N that fast performers copied more accurately and recalled more designs more accurately, the various sub-groups revealed no significant relationships between time spent copying and resultant performances. Neither did intelligence nor age correlate with the three performance scores of the sub-groups, except that older neurotics had a poorer recall performance than younger neurotics and that schizophrenics of higher intelligence had a better recall performance than less intelligent schizophrenics.

The performance for the individual designs for the total group is summarized in Table V; here the designs have been ranked as to length of time spent in copying each, as to percentage of possible errors made in copying each design, as to percentage of possible errors made in recalling each design, and as to percentage of number of designs recalled. It is apparent that design 7 is the most difficult design to reproduce correctly. Again designs 3 and 4 are least frequently recalled, a finding supported by all previous studies. Comparing the ranking of designs recalled with those of a previous study (Armstrong, 1963), a rho of .91, significant at the .01 level,

Table V — Ranking of Individual Bender Designs as to Mean Copying Time, Percentage of Possible Errors Copying and Recalling Designs, and Percentages of Designs Recalled of Total N

	Mean Copying Time		Errors Copying		Errors Recalling		Percentage Recalled	
A	1	(14″)	1.5	(6%)	5	(21%)	7	(52%)
1	3	(25″)	8	(9%)	3	(18%)	3	(81%)
2	9	(47″)	3	(7%)	6	(22%)	6	(56%)
3	6	(35″)	5.5	(8%)	8	(28%)	8	(39%)
4	2	(18″)	1.5	(6%)	9	(29%)	9	(31%)
5	8	(46″)	5.5	(8%)	4	(20%)	5	(68%)
6	5	(32″)	5.5	(8%)	2	(14%)	2	(82%)
7	7	(40″)	9	(12%)	7	(24%)	4	(70%)
8	4	(26″)	5.5	(8%)	1	(13%)	1	(85%)

resulted. In order to establish whether relationships existed between the four rank orders, the six possible Spearman rho correlations were computed. Only one rather obvious correlation was clearly significant, i.e. the most frequently recalled designs have the lowest error recall scores (.88). Time spent copying designs again showed to have hardly any relationship with performance, only a trend that quickly copied designs tended to be copied more accurately than slowly copied designs was suggested. The quality of copying specific designs did not correlate with the quality of the recall performance of the individual designs, but an unexpected trend that a well copied design might be less frequently recalled was implied.[7]

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[7] Comparisons of rankings of the various performances on specific Bender designs, as well as comparisons of rankings of the various performances of the five diagnostic groups were computed, and these results can be obtained upon request.

Projection Across Sensory Modalities[1]

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Summary: A 30 item visual- tactual projective technique capable of being scored in either multiple or free choice fashion was designed. By controlling for location, using perceptual rather than content variables, and pre-testing the items to eliminate non discriminators, previous objections to objectively scored projective tests were taken into account. The use of F-tests for between treatments and between subjects effects for four independent variables (Form, Movement, Texture, Vista) across sensory modalities revealed that *Ss* showed the greatest consistency in internal selective factors when Form or Movement was the determinant. Texture effects were significant between treatments but not between subjects suggesting that visual and tactile Texture responses are separate independent dimensions and hence inferences about Texture are modality specific. Vista behavior appeared to be a non discriminator. In general these findings were obtained regardless of the experimental procedure utilized (Multiple Choice with equivalent sets, Multiple Choice with parallel sets, Free Choice with self scoring, Free Choice with expert scoring). However, two correlations were lower in the self scored Free Choice version. This attenuation was thought due to the *S's* unreliability in scoring their own responses and to the lack of perfect comparability of selectivity factors in multiple choice versus elicitation factors in free choice.

The use of projective data assumes that differential responses by different *Ss* to the same stimulus stem from different hypothetical inner perceptual and motivational systems. Projection, in this sense, should not depend primarily upon the physical stimulation received nor upon the sensory modality of apperception. The work of Baughman (1954, 1958, 1959), Kerman (1958), McFarland (1954) and Twitchell-Allen (1951) is based on the conviction that the investigation of projective behavior must go beyond the test stimuli, sample from a broader range of test stimuli, and subject stimulus and response variables to experimental control (cf. Harris, 1960).

In order to thoroughly evaluate the consistency of various indices of projection it is first necessary to score such behavior reliably. Datel and Gengerelli (1955) found that the number of mismatches was greater than the number of correct matches, and further, that 18 of 27 judges were no better than chance in scoring Rorschach responses.

Because of dissatisfaction with free choice techniques some examiners have resorted to multiple choice scoring. One attempt to score a projective test objectively is the modification of the Rorschach by Harrower and Steiner (1951). Alternatives were provided for each of the ten items in the Rorschach. However, Smith and George (1954) found the Harrower test was susceptible to conscious and deliberate alteration in the direction of an improved picture of personality, that the location scoring was unreliable, and that normal *Ss* can identify the pathological responses. They also found the correlations to a free choice Rorschach low ranging from .09 to .43.

What is needed is a reliable objective procedure for evaluating the consistency of projective behavior in a wider variety of situations than ordi-

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[1] This study is based in part upon the research carried out for a Masters Thesis by the senior author (Audubon, 1963) under the sponsorship of the second author. We wish to express our appreciation for their manifold assistance to Arthur Benton and Leonard Eron, members of the thesis committee. This investigation was supported in part by Research Grant NB-00616 from the National Institute of Neurological Diseases and Blindness.

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narily encountered in the formal projective test administration. But this objective procedure must involve little or no location variance so that different responses by different *Ss* will actually be made to the same physical stimulus and at the same time provide response alternatives that are relatively unaffected by social desirability. As Rorschach originally thought, perceptual rather than content variables appear to fulfill this dual need most favorably as there is little evidence of their being affected by social desirability.

The purpose of the present study was to examine the relative consistency of four Rorschach-like perceptual response variables across visual and tactual sensory modalities under four experimental procedures. The expectation was that the four different dependent variables (response categories of Form, Texture, Movement, Vista) would be differentially sensitive in discriminating between *Ss* across modalities and would also reveal different overall visual-tactual treatment effects. Another consideration was the facility with which such *S* and treatment effects could be evaluated utilizing four separate scoring procedures.

The first hypothesis of this study concerned the presence of any possible stimulus-response relationships. The mean frequency of response was expected to be higher for Texture but lower for Form in the tactual as compared with the visual presentation. Vista and Movement response frequencies were expected to remain unchanged across modalities.

The second hypothesis was concerned with the consistency of internal selective (projective) factors as demonstrated by a significant correlation between *S*'s responses to stimuli in two different modalities. It was predicted that because Form and Movement show higher reliability co-efficients than Vista and Texture when comparing Rorschach and Behn as stimuli, Schwartz and Kates (1957), *Ss* would be more consistent in responding to these two determinants across sensory modalities as well.

The third hypothesis concerned the relative efficacy of four experimental procedures for scoring *S*'s responses. It was predicted that the multiple choice procedures utilizing items specifically designed for an objective scoring of responses, would prove as sensitive an instrument as free choice scoring with the added advantage that the former procedure is less time consuming and avoids confounding *S* and *E* projection.

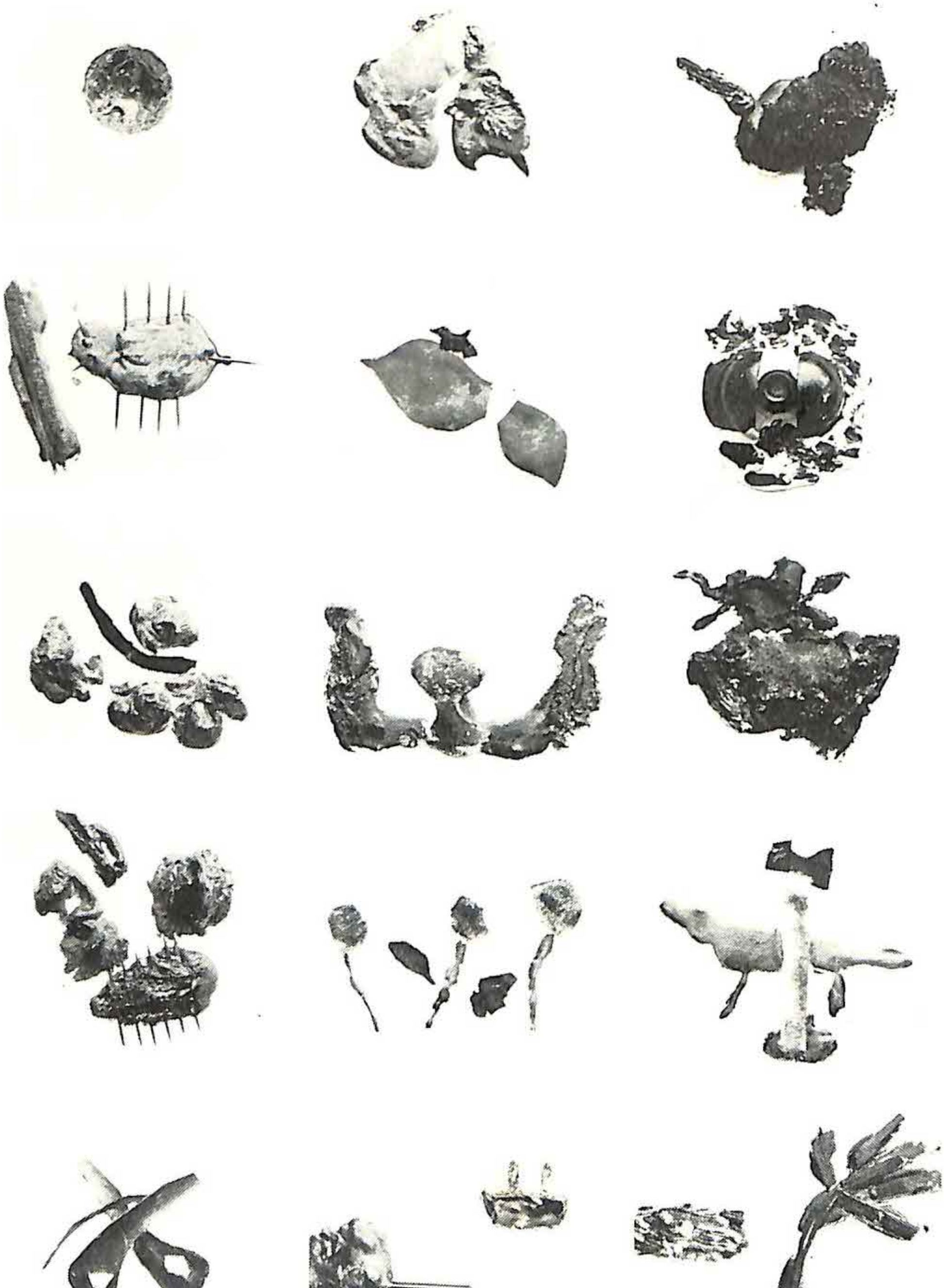
METHOD

A large number of achromatic three-dimensional projective scenes were designed for this study. Cards 7″ x 9″ provide white backgrounds for the projective scenes. The scenes were constructed of a variety of materials such as wool, fur, glass, metal, rubber, sponge, felt, etc. which were embedded in a plastic wood filler which in turn was bonded to the cards. The entire composite scenes were painted black to control for color since hue cannot be used as a determinant in a tactual presentation. The scenes were constructed so as to provide a variety of tactual sensory experiences for the *Ss*. An equivalent set of life size photographs of the scenes was used for the visual presentation in two of the studies.

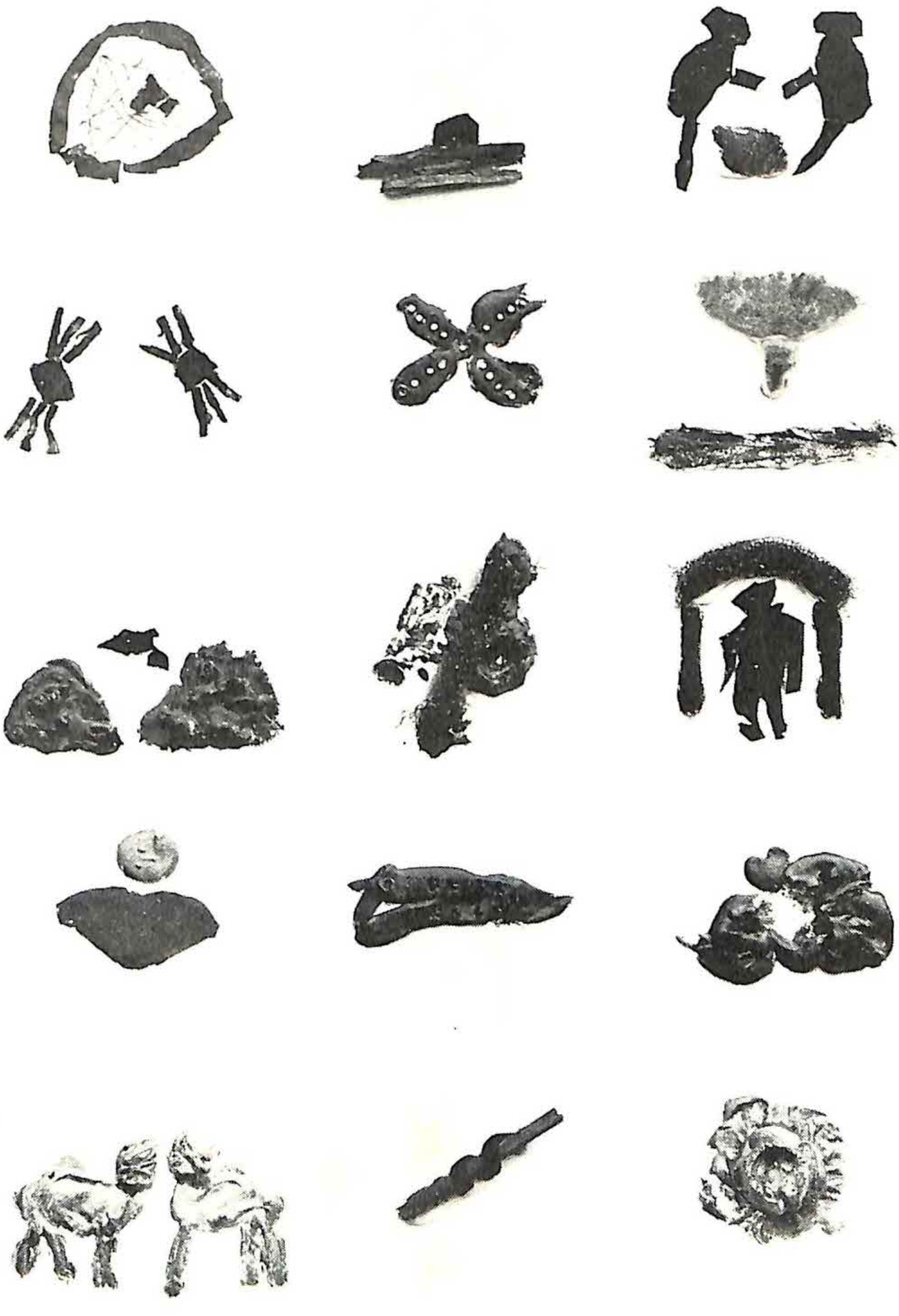
All of the items were pretested on small groups of *Ss* to obtain an approximation of the relative frequency of the type response elicited from each card and only those cards were retained that elicited all four of the response determinants. Selection of items was by elimination. Cards eliciting two or less determinants were dropped outright. Cards eliciting only three of the determinants had the choices rewritten and were pretested again and retained if they subsequently evoked the four required response categories.

The determinant categories were defined as follows.

1. *Texture:* attention to a surface, e.g. choppy, hard, soft, furry, rough,



THE ITEMS OF THE AUDUBON VISUAL-TACTILE TECHNIQUE



THE ITEMS OF THE AUDUBON VISUAL-TACTILE TECHNIQUE slimy, sleek, bristly, etc. 2. *Form:* any response even if purely descriptive where there is no movement, vista, or texture. (The major concern here was shape or outline.) 3. *Vista:* attention to two surfaces with interposition, holes, aerial views, space filling environments, reflections, objects surrounding one another implying attention to far and near surfaces. 4. *Movement:* any human, animal or object that is moving. The definitions of the Vista and Movement determinants were broader than those used in most scoring systems. In relation to Klopfer's system, the definition for Form used here is roughly equivalent to *F* or to descriptive content, that for Movement to Klopfer's *M*, *FM*, or *m*, that for Vista to Klopfer's *K*, *FK*, or *KF* and the definition of Texture used here approximates Klopfer's *c*, *cF*, or *Fc* as the case may be.

In the multiple choice studies the *Ss* were required to choose one of four alternatives as best describing each scene. For each item the same four Rorschach determinants were used as alternatives. By using only whole or cutoff whole responses, location variance was virtually eliminated insuring control over the physical stimulus to which the *Ss* were attending. Such a procedure is particularly important in multiple choice tests to insure that the stimulus to which the *Ss* are responding is the same one originally preselected for its ability to elicit all four response alternatives. Similarly, content variance was controlled to eliminate any possible confounding with the perceptual variables. In general, this was done by using the same content for each of the four alternatives. For example the multiple choice responses for item #7 include: a — Snake crawling up a tree branch. b—A slimy snake on the branch of a tree. c—The shape of a snake on a branch. d—A large snake around a branch. The content included 15 scenes concerned mainly with animals, 1 item with human content, 1 with fantasy creatures, 8 with natural objects such as trees, planets, clouds, landscapes, volcanoes, etc. and 5 items involving man made objects such as rockets, scissors, ships, etc. Stimulus ambiguity was moderate allowing the *Ss* ample opportunity for projection according to Murstein (1959). The use of perceptual rather than content variables was intended to reduce the presence of social desirability as a factor in the *Ss* choice. Since content was constant, choice should have been made primarily on the basis of the four perceptual determinants offered within the alternatives. The order of appearance of the determinants as alternatives was counterbalanced.

The instructions to the *Ss* in the multiple choice studies were:

> "This is a test of your imagination. You will be permitted to see or touch scenes representing various things for ten seconds apiece. After each presentation, four alternatives will be offered. Choose the alternative you think best describes the scene."

In the alternate modality the *Ss* were told:

> "Now choose the answer that *at this time* best describes the scene."

In the first multiple choice study, 30 three-dimensional scenes and an equivalent set of photographs of the same 30 scenes were presented to all *Ss*. In the second multiple choice study, the 30 scenes were divided into two parallel sets of 15 scenes each.[3] Each *S* was presented with only one of the parallel sets in each modality in order to rule out the influence of memory of the stimuli in the first presentation upon responses to the modality presented second. The two parallel sets of scenes were closely matched on the basis of an item analysis of the profile of responses in the four determinant categories for the data of the first multiple choice and the free choice studies. The sets were also matched for content as nearly as possible. Timing of the procedure was approximate but most *Ss* completed both the visual and tactual presentations of the two sets of 30 equivalent scenes within 45 minutes. The parallel sets of 15 scenes used in the second study were completed in about 20 minutes.

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[3] One of the authors (J. A.) was the experimenter for the procedures utilizing the 30-item equivalent sets. We are indebted to Charles Hall for administering the 15-item parallel sets to the other *Ss*.

In the modified free choice, the *Ss* first gave one free association to each scene and then were required to score their own responses by means of a special set of alternatives derived from the ones used in the multiple choice task. A quasi inquiry process was used during the *Ss* initial association period if the *S* did not associate freely, viz: could you tell us a little more, what makes it seem like a bug, etc. The two equivalent sets of 30 scenes were used. The special set of alternatives used was neither so general as the definitions of the four determinant categories nor as specific as the individual multiple choice alternatives. Instead, the special set usually eliminated reference to specific content (except in cases of items that had previously shown little content variability), so that the *Ss* could fit their own responses to whatever choice seemed closest. Thus the *S* would not choose from a general definition such as: Movement—any response where . . . nor a specific choice such as: a mouse crawling . . . . Rather their choice would be selected from alternatives offering a moderate degree of specificity such as: some animal or thing moving along . . . .

The instructions to the *Ss* were:

> "This is a test of your imagination. Miniature scenes will be presented representing distorted props from a Hollywood movie set. Use your imagination to decide what the props could represent and what they could be used for."

In the alternate modality *Ss* received identical instructions. When scoring responses *Ss* were told:

> "Here are some index cards on which I have written down what you have said. Read what you have said, try to recall the scene to which you refer and choose the alternative that best describes the scene as you remember it."

Timing again was approximate but most *Ss* required almost two full hours to complete the task. Any *S* not giving at least ten associations in the first half hour was dropped. One *S* failed to meet this criterion.

In addition to the *S*'s self scoring, the free choice data were scored by two "experts," the authors. The experts did their scoring independently after comparing notes on some preliminary ratings in order to sharpen the definitions of the scoring categories. Texture, vista, and movement were each scored as present or absent with the exception that only half credit was given for movement responses involving merely static live postures or states of tension. The order of *Ss* responses, and modalities scored was varied randomly for each expert. The expert scored in succession all of the given *S*'s responses in one modality for one determinant, and scored all *Ss* for a given determinant before turning to the next determinant. The scoring of any given *S*'s responses in the two modalities was always separated by the scoring of several other *Ss*. In addition to being more accurate, the expert scoring reflected the richness of the free response data by permitting two or three determinant categories to be scored for a single response. However, under the expert scoring, the Form category was scored by a process of exclusion. After the other three determinants had been scored, each response which had not been scored as falling in any of the other three categories was scored Form.

The *Ss* could not derive tactual sensations from the visual items and were not permitted to see the tactual forms in the alternate presentation so that visual and tactual stimulation were not confounded. Order of presentation was counterbalanced by beginning the presentation with one modality for half of the *Ss* and with the other modality for the remainder. Only two groups were required in order to counter-balance order when equivalent sets of the same 30 scenes were presented in both modalities. However, for the procedure involving parallel sets of 15 scenes, four groups were required since two combinations of modality with set had to be counterbalanced.

The *S*s were 72 volunteers from the undergraduate student population. They comprised a group of 20 for the multiple choice procedure with equivalent sets, 32 for the multiple choice procedure with parallel sets, and 20 for the free choice procedure.

RESULTS

The variance of the scores was analyzed into components for each determinant and each experimental procedure separately. In addition to a component for individual subject differences, components of variance were also obtained for the treatment conditions, primarily modality and order, and their interactions. The mixed designs for analysis of variance described in Lindquist (1953, Chapt. 13) were utilized. The simplest experimental procedure fit Lindquist's Type II design. The procedure using parallel sets required a Type V design with set being a third treatment condition. The procedure involving scoring by two experts required a Type VII design with expert being a third treatment condition. The use of these statistical techniques may be questioned, but repetition of the findings under several experimental procedures served as a check on the conclusion drawn.

The first hypothesis predicted a systematic difference for all *S*s in frequency of response in various determinant categories as a function of the sensory modality in which the stimuli were presented. Table I shows that, as predicted, the mean frequency of responses involving Texture as the determinant was considerably larger when the tactual modality was stimulated. The tactual mean ranged from

TABLE I—Comparison of Mean Frequency Of Response for Two Sensory Modalities in Each Determinant Category Under Four Procedures

Modality	*Determinant*			
	Texture	*Form*	*Vista*	*Movement*
Multiple Choice—equivalent sets (N = 20)				
Visual	5.75	6.35	9.05	8.85
	**	*		**
Tactual	11.20	4.60	8.65	5.55
Multiple Choice—parallel sets (N = 32)				
Visual	2.91	3.94	4.44	3.72
	**			
Tactual	4.44	3.53	3.63	3.41
Free Choice—self scoring (N = 20)				
Visual	6.20	7.40	9.00	7.40
	**	**		
Tactual	9.05	5.80	8.80	6.35
Free Choice—expert scoring of same data				
Visual	5.70	9.27	8.48	11.21
	**	*		**
Tactual	12.40	7.82	8.25	6.40

*Difference between modalities was significant, $p<.05$.
**$p<.01$.

about 50 to 100% larger than the visual mean, and the differences were significant at the .01 level for all experimental procedures. These differences in the Texture category were so large that the visual means were consistently higher for all other determinants. The differences were small and insignificant for the Vista determinant. The finding of a higher visual mean was significant in two experimental procedures for the Form determinant, as predicted, and for the Movement determinant where no prediction was attempted.

Significantly higher visual means for Form and Movement were found with both multiple choice and free choice procedures when the full 30-item equivalent sets were used. However, the finding for Movement was significant in the free choice procedure only when the scoring was done by experts, who were permitted to score more than one determinant for a given response. With the multiple choice procedure, using parallel sets, differences for Form and Movement are quite small and do not approach significance. Cutting the instrument in half to make two parallel 15-item sets was not compensated for by increasing the *N* to 32. For the two determinants in question, the two sets of stimuli turned out to be not strictly parallel.

For each determinant category, the significance of individual differences was evaluated by F-tests involving the residual between-subjects mean square and the residual within-group, or error, mean square. These mean squares were also used to compute intraclass correlations according to Lindquist's (1953, Ch. 16) procedure. The intraclass correlations, which are shown in Table II, indicate the degree of consistency, or reliability, of the *S*'s responses across stimulus modalities. Since *r* and *F* here reveal the same fact in two forms, the results of the F-tests of individual differences are used to indicate the significance of the corresponding correlations.

The within-group error mean square associated with expert was used to compute scorer reliability coefficients. The reliability of the expert scoring of the free choice data was a highly satisfactory .9 for three determinant categories but fell to an insignificant .2 for the Vista determinant.

The results indicated definite consistency of projective responses to stimulation in two sensory modalities for two of the four determinants studied. For both Form and Movement

TABLE II—Consistency of Projection: Intra-class Correlations Between Responses in Visual and Tactual Modalities in Each Determinant Category Under Four Procedures

	Determinant			
Procedure	*Texture*	*Form*	*Vista*	*Movement*
Multiple Choice—equivalent sets ($N = 20$)	.36	.66**	−.08	.72**
Multiple Choice[a]—parallel sets ($N = 32$)	.31	.34	−.15	.62**
Free Choice—self scoring ($N = 20$)	.05	.64**	.09	.35
Free Choice—expert scoring of same data	.38	.78**	−.06	.57**

[a] Spearman-Brown split-half correction applied.

*$p < .05$. **$p < .01$.

determinants, Table II shows that three of the experimental procedures yielded highly significant cross modality consistency with the median correlation about .6. There were five correlations around .3 which, for the sample sizes dealt with in this study, have a probability level around $p=.10$. Thus there is no serious disagreement with the hypothesis of consistency of projection for the Form and Movement response categories. Three of the experimental procedures yielded consistency correlations for the Texture determinant of .36, .31, and .38 with respective *p*-values of .07, .20, and .07. The pooled *p*-value for these three correlations was .05, utilizing the chi-square technique of Jones and Fiske (1953).

There was considerable justification for preferring the expert over the self scoring of the free choice data. For the three determinants showing any consistency, the experts obtained higher correlations than the *Ss* themselves. The *S*'s scores did not correlate well with the experts. The median within-groups rank order correlation between subject and expert was only .26. The experts however agree well with each other. The *Ss* were hampered in their scoring in two ways. The *Ss* had to remember what each scene they responded to was like after going through the entire free response portion of the task in that modality, and they were permitted to score only one determinant category. The experts, on the other hand, were not forced to choose between two or three categories which might have been equally applicable to a response.

No consistency across modalities was found for the Vista determinant. The generally negative finding for Vista, as well as the lack of agreement between experts attempting to score this category, cast doubt on the adequacy of the definition of Vista used in the present study. The Vista category appeared too heterogeneous to produce any reliability between treatment conditions.

DISCUSSION

In the light of the general consistency of the results, the differences in the relative sensitivity of the four experimental procedures are of minor importance. The direct multiple choice procedure turned out to be as sensitive as any. This was undoubtedly due to the empirical development of the response alternatives which held content constant and elicited approximately equal proportions of responses in each determinant category. There were practically no significant differences between experimental procedures in mean response in a given stimulus modality. The means for tactual Texture and visual Movement under expert scoring did become quite large. These two means accounted for most of the multiple scores which the experts were permitted to assign. If the expert scoring of the free choice data had not been done, it would have erroneously been concluded that Texture and Movement were not strongly elicited by tactual and visual stimulation respectively, under free choice conditions.

The Form response tended to be more frequent in the free-choice condition. The larger proportion of Form responses in free-choice projection may have negative implications for it could represent *not* choosing a more elaborate attribute. This suggest guardedness or lack of ego involvement in the task. On the other hand, the difference in question could be seen as a facilitation of richer responses when the other determinants were provided in multiple-choice alternatives. At any rate the differences were small: stimulus modality and internal selective factors were more important than mode of response.

One experimental procedure involved 15-item parallel sets of stimuli in order to rule out the effects of memory. Since the *Ss* who were administered the 30-item sets felt and saw the same items in both sensory modalities, it could be argued that memory for responses made to the first presentation accounted for the consistency of the responses in the other modality. Memory obviously played a part: many *Ss* mentioned that certain scenes looked like something they had previously felt and could recall their previous responses. However, Table II shows that only one consistency correlation, that for Form differed markedly between the memory (equivalent sets) and non-memory (parallel sets) procedures.

Some other data indicated that memory played a minor role in the findings of this study. For each *S*, the percentage of identical responses to the two sets of stimuli were tabulated for the two experiments using equivalent 30-item sets. The median percentage of repeated responses showed little variation over the four determinant categories. These medians ranged from 38% to 50%. There were consistently more repeats in the free choice (45%) than in the multiple choice procedure (39%). This was probably due to the fact that only the multiple choice instructions emphasized the independence of the modalities by inclusion of the phrase: "choose the alternative that *at this time* best describes the scene." While a slightly higher percentage of repeats was found for the least consistent category, Vista responses; one of the most consistent categories, Movement, had the next highest percentage of repeated responses. Thus differential memory effects could not account for the large differences in crossmodality consistency among the four determinants.

In agreement with one hypothesis of this study, the consistency of a projective response was a function of the nature of the response category. The Vista category was apparently not defined objectively enough to lend itself to reliable measurement, but more basic issues are raised by the findings for the other determinants. Although a significant trend towards cross modality consistency was found for the Texture determinant, Texture responses were for the most part modality specific. As might be expected, tactual stimulation elicits many more responses which involve the perception of a textured surface. While this was a constant effect for all *Ss*, it tended to reduce the variance of individual differences. The large mean difference and low relationship between visual and tactual Texture responses suggests that different kinds of cues are operating in the perception of Texture in the two sensory modalities. This indicates the limitations of a theoretical interpretation of the visual Rorschach (for example, that of Klopfer, *et al*, 1954) which connects Texture responses to affectional needs through the intermediate link of a need for physical contact and tactual stimulation. Ainsworth and Kuethe (1959) found a small correlation between Texture responses on the Rorschach and a sorting task in a patient sample, but not in a normal sample. There is some connection between the visual and tactual perception of Texture, but the majority of cues that mediate visual Texture perception probably have nothing to do with physical, tactual stimulation.

The greater stability of Form and Movement responses agrees with Eichler (1951) who found that these two variables were among the more stable both in test-retest correlations with the Rorschach and in comparisons of responses to Rorschach and Behn stimuli. The results are in agreement with Baughman's findings (1954, 1958, 1959) that the shape, or form, of the Rorschach stimuli were of primary importance in determining projective perceptual behavior. Form is a determinant which is primarily a product of the *S*'s perceptual environment. The finding of cross modality consistency suggests considerable overlap in the cues which mediate visual and tactual perception of shapes. Movement, on the other hand, as Benton (1952) points out, is not an objective "determinant" but is totally a product of the *S*'s imagination. The inner determinants responsible for the projection of Movement appear to function quite consistently whatever the stimulus. In any event the findings of consistency in internal selective factors are contrary to the previous conclusions of O'Karski (1958). O'Karski compared Rorschach, Behn-Rorschach, and Levy Movement cards and found that *Ss* did not produce *M, FM,* and *m* related to any deep rooted stable characteristics. Performance, said O'-Karski, is test specific.

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Scoring and Interpreting Responses to Semi-Structured Sound Effects

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Summary: Sixteen sound effect patterns have been selected from 60 that were tried which have been demonstrated to be semi-structured, with quite ambiguous situational interpretations. Fantasy stories from psychotics, college students, Air Force men, and blind persons have been shown to reveal unique aspects of personality dynamics sometimes not found through visual projective techniques. Validation and partial quantification of the auditory test have been described. Much future refinement of the technique is planned, and further comparison of different diagnostic groups is contemplated when these populations can be enlarged.

The hypothesis that the rich variety of fantasy stimulated by sounds in some individuals may be found to have diagnostic value when used to supplement the interpretation of associations with visual stimuli elicited from the same persons seems to be worthy of careful study. It is hardly necessary to review in detail the evidence presented by a number of writers to support the widely accepted view that, in a so-called "normal" population the majority may be described as "eye-minded" or, if you prefer, predominating in clear visual imagery with rich associations accompanying experiences had largely through seeing. Probably a large minority have relatively clearer auditory experiences with a rich variety of accompanying fantasy, and could be labeled "ear-minded." In extreme form the latter predominance might even approach, or take the form of, hearing voices, amounting to such interpretations of almost inaudible, faint sounds as being voices making derogatory remarks about the hearer, etc. Furthermore it is interesting that the hallucinations in psychotic patients are not often visual, even though sight is agreed to be the most important human sense from the standpoint of its importance in everyday adjustment. Hallucinations have been observed to be predominantly auditory. Assuming that the voices heard by the schizophrenic frequently begin with ideas of reference, with a real stimulus acknowledged by the patient as there, but grossly distorted by him in the process of interpreting it, development of this behavior pattern to a stage in which on the surface it appears to be entirely internally aroused may be postulated. Fragmentary observations from clinical experience would suggest, however, that hearing voices may often be an extreme distortion of external stimuli of very low intensity, rather than a purely subjective phenomenon. The quality of the experience and its significance to the patient prove of value in understanding him, as clinicians appear to agree.

On such basic assumptions as the above, a few unstructured and semi-structured auditory tests have been constructed and given at least a preliminary trial, yet the perfection and validation of these would seem to leave much to be discovered.[1]

Under the support of the Hogg Foundation for Mental Hygiene, University of Texas, from September 1, 1956, to the present, and with additional help from Baylor University, together with its College of Medicine; Big Springs: Texas State Hospital; Waco, Texas, VA Hospital; Knoxville, Iowa, VA Hospital; Gaylor Psychiatric Hospital, Memphis, Tennessee, and numerous devoted individuals, the present project has moved forward. The Sound Apperception Test[2] is intended as a clinical instrument, composed of unstructured and semi-structured sounds. Thus it is roughly the auditory equivalent of both Rorschach and Thematic Apperception Test, but it is not proposed as a substitute for these well-known diagnostic tools. Rather it is conceived as a valuable supplement to them in some cases giving sterile protocols to visual projective tests, or needing more thorough study in order to clarify dynamics sufficiently. A secondary use for blind persons probably also contributes to its value. Some people are "ear-minded," or have a richer variety of experience in response to sounds than to sights, producing in response to many noises many interesting fantasies. The majority are "eye-minded" probably, or have more frequent, vivid, and elaborate imagery stimulated by visual material than by auditory. Yet for all with normal sight and hearing, everyday sounds have meaning. Some are a threat, like a siren, for example, while others comfort us, as perhaps water flowing gently over rocks might do. Such reactions, differing in intensity from person to person, are observed to be basic and almost universal, even though in part determined by learning.

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[1] See References

[2] Available from the author.

Sampling the everyday occurrences that influence a person's behavior, or that are distorted or misinterpreted by him, or that are rich in meaning for him will help us to know him better. Such a sample would hardly be complete, however, if confined to those experiences stimulated in him by one sense only, even if that be the most important and valuable source of information from his environment. Therefore a question may appropriately be raised as to why so few auditory projective methods have been designed. One might wonder still why some of the few existing devices of this kind are not more widely used than they are, since the material in them is often interesting and has usually been well selected and recorded. Perhaps the unavailability of equipment in most hospitals and clinics adequate to reproduce the sounds with sufficient accuracy plus the disappointing absence of much qualitative supporting data or scoring systems could discourage many clinicians qualified to make use of projective methods. Anyhow, the presence of several developing instruments of this type is to be considered favorable to progress provided defense of their usefulness is ultimately based upon sufficient careful research.

Construction and Standardization

A total of about 60 sound effect sequences were produced and recorded, then given a preliminary tryout on 60 college students. These semi-structured stimuli could usually be identified correctly; few were ambiguous. The situations behind the sounds, however, were indefinite, and could be interpreted in a number of ways in the best of these. Most of them were done live by the investigator on a "hi fi" tape recorder, but some were transcribed from other recordings, or constructed by superimposing a live sound upon a recorded one. Final selection was based upon the variety of individual interpretations and judgment as to personality dynamics revealed. For instance the writer attempted to stimulate stories by means of the sound of two men fighting. He shuffled his feet on the floor, groaned, and beat his chest in front of the microphone. The first three attempts did not sound realistic, but the fourth resulted merely in the same story essentially from all subjects about two men arguing, then fighting, and, of course, a sore chest for the writer. This pattern was discarded. Some stimuli were sequences of sounds, while others were simultaneous. Sixteen of them were retained for the final test.

Group administration procedure was subject to the same weaknesses as have been found with Rorschach and TAT, particularly, through the absence of inquiry, which can be very effectively applied to each individual to produce more complete fantasy stories.

A sample of 100 Air Force men was selected to represent a wide age range, (19 to 46), variety of occupational groups, education that would roughly match census data, and a wide range of intelligence levels from borderline to very superior. They came from many geographic areas. Thus they may be considered roughly a normal group of males. Each one was given the sound effect patterns individually. Fifty-five blind persons of both sexes and covering a wide age range were then tested. There were 131 college students of both sexes and 109 male and 45 female hospitalized mental patients from Big Spring; Texas State Hospital; Waco, Texas, VA Hospital; Knoxville, Iowa, VA Hospital; and Gaylor Psychiatric Hospital, Memphis, Tennessee, all of who were individually tested. Baylor University College of Medicine in Houston assisted in obtaining a few of these patients, and the students were from Baylor University in Waco.

Quantifying responses to the semi-structured sound effects brought forth difficulties. Problems encountered were similar to those found in dealing with TAT stories. No system is known to this investigator which could be called anywhere near complete. If categories were listed in such detail as to cover ten pages, this might quantify most aspects of the stories, but such a method would be too cumbersome to be adequate for clinical purposes. Probably the categorizing of thematic emphases and endings would be practical if supplemented by content analysis. Robert I. Watson, in his book, *The Clinical Method in Psychology*, recommended a scoring method for TAT based upon the need-press system of Murray. A slight modification of this procedure was adopted which seemed to be the best available quantification, though it failed to describe all important aspects of the stories, and therefore had to be supplemented by a content analysis approach. The compromise between quantification and qualitative description, though somewhat subjective, of course, appeared to be the most workable procedure for standardizing and validating this test as far as possible. Its weaknesses are obvious, however, when differentiation of groups had to be defended. The directions for checking this score sheet in its original form were not easy to interpret in some respects. The number of check marks on each story would sometimes differ for two different scorers, because they could not always agree on whether some of the sub-categories overlapped or not. *Internal conflict* and *emotional stress* might both be checked for one story, but one could easily defend checking only the one or the other of these two. The same difference of opinion occasionally occurred with *fear* and *anxiety*. (See Table III ANALYSIS OF SOUND APPERCEPTION TEST) Inter-rater agreement, however, was generally quite high for any two scorers of the same protocol if they were sufficiently oriented in personality dynamics and projective techniques.

Table I shows how the various scores were converted to scaled scores on a 7 point scale. A more refined system of scaled scores such as Wechsler

TABLE I — Scaled Scores for All Variables

Percent of Dist.	*Scaled Score*	*Cat. I*	*Cat. II*	*Cat. III*	*Cat. IV*	*Cat. V*	*Total*	*Failure*	*Success*
100	7	over 6	over 23	over 8	over 11	over 18	over 53	10-16	13-16
96-99	6	6	19-23	7-8	10-11	16-18	48-53	8-9	11-12
76-95	5	4-5	12-18	3-6	7-9	12-15	33-47	6-7	8-10
26-75	4	1-3	7-11	1-2	4-6	7-11	21-32	3-5	4-7
6-25	3	0	4-6	0	2-3	3-6	15-20	2	2-3
2-5	2	——	3	——	1	2	12-14	1	1
1	1	——	0-2	——	0	0-1	0-11	0	0

TABLE II — Categories of Thematic Emphases and Endings

I Loss of Life	*II Physical Aggression*	*III Nonphysical Aggression*	*IV Internalized Emotional Stress*	*V Positive Reassurance*	*Failure*	*Success*
Murder	Physical Violence	Quarrel	Deprivation	Sex	Economic	Economic
Death	Injury-accident	Domination	Internal conflict	Pity-forgiveness	Social	Social
Suicide	Illness	Antagonism	Emotional stress	Gratitude-friendship	Power	Power
	Crime	Dishonesty-cheating	Misfortune	Love	Love	Love
	Punishment	Disloyalty	Disappointment	Happiness		
	Arrest-capture	External conflict	Separation-rejection	Obligation		
	Escape	Hate-revenge	Despondency	Affection		
	Threat-reprimand-bullying	Anger-rage	Jealousy	Repentance		
			Fear	Goal		
			Anxiety			
			Rejection			

used on his WAIS was not considered suitable for a test so dependent upon subjective judgment of the examiner as the SAT. The conversion was done on a profile chart or score sheet, Table III, so that various comparisons could be made at a glance.

Evidences of validity of the Sound Apperception Test were found through different approaches. One method was to select at random 10 normal protocols and 10 schizophrenic cases. These were presented to two experienced clinical psychologists with instructions to sort the two groups on the basis of responses to this one test alone. It is remarkable that each clinician made only one error in sorting, and the same error. One normal subject was placed in the schizophrenic category. Since little was known about this one Air Force man, we could not definitely say that an underlying schizophrenic process was absent, but we could say that it was not overt, and that the man was making a fair adjustment to the military service at the time he was tested. Another 10 normals and 10 psychotics in a hospital were given to a different pair of clinicians to sort. This time one psychologist placed a schizophrenic in his normal groups, while the other was doubtful where the same patient should be placed. The second sorter also had another doubtful case that should have been categorized as normal, while the first had another doubtful case who actually was diagnosed schizophrenic. If an accuracy of 8 out of 10 to 9 out of 10 can be achieved, this is about as accurate a diagnostic instrument as any now used, though the need for further use of this sorting approach to measure inter-rater agreement on other diagnostic groups is recognized.

Another approach was to match conclusions reached from the test alone regarding personality dynamics, diagnosis, and prognosis with detailed information from case history, other test data, and ratings of behavior. This approach has been possible so far on

2	L	I	D
	8	5	7
	8	6	6
	8	7	6
	6	6	8
	7	5	8
	6	7	7
	6	7	7
	7	7	6
	8	6	6
	8	8	5
TOTAL			

TABLE III—Analysis of Sound Apperception Test

	Sound																
Theme	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Summary
I Loss of Life																	
Murder																	
Death																	
Suicide																	
II Physical Aggression																	
Physical violence																	
Injury-accident																	
Illness																	
Crime																	
Punishment																	
Arrest-capture																	
Escape																	
Threat-reprimand-bullying																	
III Nonphysical Aggression																	
Quarrel																	
Domination																	
Antagonism																	
Dishonesty-cheating																	
Disloyalty																	
External conflict																	
Hate-revenge																	
Anger-rage																	
IV Internalized Emotional Stress																	
Deprivation																	
Internal conflict																	
Emotional stress																	
Disappointment																	
Misfortune																	
Separation-rejection																	
Despondency																	
Jealousy																	
Fear																	
Anxiety																	
Rejection																	
V Positive Reassurance																	
Sex																	
Pity-forgiveness																	
Gratitude-friendship																	
Love																	
Happiness																	
Obligation																	
Affection																	
Repentance																	
Goal																	
Summary																	
The following applies to the person with whom the subject seems to identify in the story																	
Outcome: Failure of Central Figure — Economic																	
Social																	
Power																	
Love																	
Outcome: Success of Central Figure — Economic																	
Social																	
Power																	
Love																	

TABLE III—Scaled Score

:	1	2	3	4	5	6	7
Reality Orientation	0-1	2-3	4-6	7-10	11-13	14-15	16-20
L.I.D.	55	56-57	58-60	61-65	66-69	70-73	74-76
Category I	---	---	0	1-3	4-5	6	7+
Category II	0-2	3	4-6	7-11	12-18	19-23	24+
Category III	---	---	0	1-2	3-6	7-8	9+
Category IV	0	1	2-3	4-6	7-9	10-11	12+
Category V	0-1	2	3-6	7-11	12-15	16-18	19+
Summary	0-11	12-14	15-20	21-32	33-47	48-53	54+
Success	0	1	2-3	4-7	8-10	11-12	13-16
Failure	0	1	2	3-5	6-7	8-9	10-16

REMARKS:

only 40 cases, including 12 college students and 28 hospitalized mental patients, on whom extensive data were available. Results of this approach are difficult to defend, because the matching procedure is too subjective. The results on these 40 cases were more disappointing than on the first 40, but still tended to show close enough agreement to make the test of value. On about 5 cases in this group, there was relatively little content given on Rorschach and TAT, while on the Sound Apperception Test there was richer fantasy, allowing more definite conclusions to be drawn from the auditory than from the visual projective tests. Nine cases demonstrated the reverse trend. The remainder had approximately equal amounts of visual and auditory fantasies, so that it would be difficult or impossible to show that the SAT contributed significantly more or less information. In three cases of this group, neither the visual nor the auditory stimuli contributed enough to be of much help in describing dynamics or identifying diagnosis.

The third technique was an attempt at quantification designed to show so far as possible that this new test could reliably differentiate clinical groups. Raw scores were computed. Then the mean for the distribution of each population was found. Total score (the number of check marks made for the thematic emphases on all 16 stories) probably has little meaning; the number of check marks made roughly indicates the amount of dynamics revealed by the stories. There was not a significant difference between the 154 psychotics and 100 Air Force men in mean total score, but there was significantly greater variability in this respect for the psychotics. The standard deviation of the psychotic group was significantly greater than that of our normals.

Of greater importance was a comparison of the profiles of different groups (see score sheet). Schizophrenics showed extreme tendencies. For example, one had eleven check marks out of 16 stories for I. Loss of Life, 10 for II. Physical Aggression, 2 for III. Non-physical Aggression, 0 for IV. Internalized Emotional Stress, and 1 for V. Postitive Reassurance. Another schizophrenic had none for categories I and II, 9 for III, 11 for IV, and 3 for V. Air Force men and 131 college students tended to have more nearly even distributions of check marks for the five categories. For category I. Loss of Life, the Air Force "normals" had a mean of 3.4 raw score, and S.D. .65. The schizophrenic mean was 3.9, S.D. .68. The college student mean was 3.5, and S.D. was .67. Thus differences between the college students and "normals" did not reach significance, but the schizophrenic group was found to differ significantly from the normals, and at .01 level. Between schizophrenics and normals, means on category II and category V, (Physical Aggression and Positive Reassurance) failed to reach significance, but in both cases the variability (S.D.) was significantly higher for the schizophrenics. Category III, Non-physical Aggression, attained significantly higher means and S.D.'s for schizophrenics (mean of 3.8 and S.D. .79 as compared with 3.1 and .54 for Air Force normals). Category IV, Internalized Emotional Stress went in the same direction, with schizophrenic mean 4.7 and S.D. 1.1, normal mean 3.8 and S.D. .78, significant at .01 level. Organics were not sufficient in number to be conclusive so far, and were not homogeneous in a number of respects. However, their mean scores by category were: I. 2.4, II. 2.7, III. 1.9, IV. 2.9, and V. 1.8. These were all quite low, and total score averaged far below the other groups, meaning they were less productive of dynamics. Further study of organic patients is indicated, however, before conclusions are drawn regarding significant differences between them and other groups. Tentatively it may be suggested that this group may give less content.

The number of success endings and failure endings to stories may not be the equivalent of the prevailing mood of the narrator, for there were many who probably forced themselves somewhat toward optimism in outcome, merely because they felt that it would be inclined to place them in a socially acceptable light. There were a few who, from the total picture, appeared to be covering up depressive trends in their personalities with success endings. Others tended to admit their discouragement with life situations rather than repress or suppress them. Among our normal group, the mean for success endings was 6.6, while for failures it was 5.9. About four stories in the average protocol did not clearly reveal a success or a failure ending, but a neutral one or no ending at all. Schizophrenics had a mean of four successes and 3.6 failures, the other stories being without ending or indefinite. To point out that other comparisons in quantitative terms are worth making when adequate samples of other diagnostic groups and younger age groups have been accumulated appears to be a needless elaboration of the obvious.

It is evident that the Sound Apperception Test has a defensible, even though partial, quantification, which has been defended as attaining reasonable objectivity. Admittedly it contains numerous imperfections at this stage of development. Responses of the blind subjects, most of them totally sightless since birth, covering ages from adolescent to late middle age, had some striking qualitative characteristics, even though they were as a whole surprisingly like those of sighted persons. Blind persons who never had any visual experience at all are known to engage often in what has been called "verbal hypocrisy," or in other words to narrate events and observations as if they had experienced them visually as sighted people would do. This procedure in reporting impressions obtained from the test stimuli was very frequent and appropriate in terms of stereotypes within our culture to an extent that often rendered the narratives entirely plausible and realistic. What a blind person hears others say tends to motivate him to use the same language in communicating his experiences or fantasies. Sometimes the end result is very real to the reader, and sometimes not. Anxiety and feelings of inadequacy were relatively frequent, showing up in some qualitative aspects of responses. A probable explanation of this could be found to a large extent in the limitation of activities and roles which the blind find difficult to learn to accept and live with, and possible too the threat of strong competition in occupations, social life, etc. Generally, though, productivity of the blind was slightly, yet significantly greater in terms of word length and in terms of amount of fantasy stimulated.

Children so far have slightly exceeded 30 in number, largely selected for their emotional or family disturbance. Thus they could hardly be adequate for establishing norms or for drawing any conclusions. Therefore, a mere suggestion of a possible trend can be given from the SAT protocols of these few, who ranged in age from 8 through 16. Imaginative stories from typical children of these ages may be magic, unreal, and over-dramatic.

Thus far the scaled scores based upon the male Air Force sample of 100 seem to be the best norms to apply to quantification of this test. No significant differences in the means for each variable have been found between male and female college students. Female mental patients have not been found in sufficient numbers yet to make a meaningful comparison with a suitable group of males. College students generally produce more elaborate descriptions and plots for stories than do other groups. They tend to be able to integrate better some of the difficult sequences, such as the diesel train, galloping horses, and swishing canoe paddles, into sensible stories than other groups could.

There were 50 subjects on whom a comparison of thematic emphases and endings was possible on TAT and SAT. Ten were college students and 40 were hospitalized mental patients. It is difficult to interpret such significant differences between mean scores as were found, since scores would depend so much upon the particular pictures selected for the 16 stories, which were not the same ones for males and females, and not exactly identical for all individuals of each sex. Total score on the two was significantly higher at .05 level for TAT. Probably the only defensible real difference between these two profiles was a fairly consistent tendency for the auditory stimuli to arouse more unpleasant themes as compared with pleasant ones than the pictures produced. In other words pictures gave somewhat more cheerful fantasies on the whole than did the particular sounds selected, but a different choice of 16 cards among those available on the TAT might well have brought forth a different result. Positive reassurance in the form of love themes and friendships in interpersonal relations seemed more possible on the cards than with the sounds, which often produced somewhat more violent stories. Absent in the stories on most of the sounds were themes of parent-child or sibling relationships, which came out more frequently and more clearly on the pictures. On the other hand, the sound effects frequently revealed fears and anxieties which the TAT failed to bring out in the same persons. It is even possible to speculate that the auditory test may be a more sensitive instrument to evaluate degree of recovery in psychotics and neurotics than the ink blots and pictures. The above statement is to be interpreted with caution as a plausible hypothesis rather than as a well grounded interpretation at this stage of development of SAT.

Description of Sounds and Sample Stories

1. Thunder, wind, rain, female voice calling for help (simultaneous).
2. Scream of terror, then sobbing simultaneous with male footsteps walking away on wooden floor.
3. Speeding car, then brakes, then wreck followed by crowd talking with crackling fire in background.
4. Men talking low as crickets and frogs heard in background.
5. Fountain or pool filling. Children then play in water, yelling happily.
6. Diesel train approaching and passing, then galloping horses, finally swishing canoe paddles.
7. Explosion, man running downstairs, crowd laughing (succession).
8. Party crowd talking, bottles clinking, and pouring of drinks in background.
9. Applause, then shot, then running, finally traffic.
10. Heavy truck starting, then bombing from plane.

11. Smooching scene, door slam, slap in the face.
12. Falling out of bed, then snoring.
13. Squeaking bed springs, opening squeaky door, alarm clock.
14. Groaning in pain with muttering in background.
15. Clocks ticking, then striking the hour, then a cash register.
16. Opening door, man walking hurriedly to desk, opening drawer, crumpling paper, slamming two drawers, finally dialing phone.

Examples of thematic emphases, endings, and misperceptions or distortions to be noticed if these or similar ones occur are given for some of the sounds as follows: (Some recorded live entirely; other superimposed patterns)

Sound 1. Rain, wind and thunder and a simultaneous, somewhat distant voice of a woman or child calling for help several times, then fading.

Rapids or just a river may appear in place of rain, thunder being disregarded entirely. The story may play up falling in the water and rescue from drowning rather than being frightened, lost in a thunderstorm in the woods, then finding way home, or being found. Failure of efforts by self or neglect by others, especially if ending in death or severe injury, should make the examiner watchful in later stories for supporting evidence of strong self-destructive impulses, rejection by others, or feelings of inadequacy or hopelessness. Anxiety or fear may be strong in some stories from wording, tone of voice, etc. Secure feelings in a mild crisis may also be stressed by the narrator, or concern of people generally for one another's welfare and safety.

Sound 2. Woman's terrified scream, then her sobbing while slow footsteps on a wooden floor walk away.

Omission of sobbing or footsteps from the narrative altogether or insertion of sounds of a struggle not in the stimulus pattern may indicate deviation from objective reality, or possibly a disturbance of perception by strong anxiety aroused by the intense realism of this recording. Stories of murder, suicide, sexual assault or threat, and exaggerated emotional response to a harmless sudden appearance of some entirely innocent person in a dark place are all common. The last of these could be an evasion of real danger if treated blandly without rational explanation, but clinical "hunches" of this sort, though plausible hypotheses, need further support before being at all conclusive. Phobias and anxieties regarding bodily harm or sex may begin to show up here in a real-life episode traumatic enough to some disturbed persons to offer evidence, not without some foundation in follow-up observation, that the person has not yet achieved a degree of emotional stability or detachment to enable him to maintain his equilibrium through the complexities and frustrations of the modern world of everyday life outside a hospital. In other words it is tentatively proposed that this part of the test is in particular a sensitive measure of extent of recovery from mental illness such as other clinical tools of today may not contain. Further examples of this unique usefulness of the Sound Apperception Test may be speculated as having some evidence to support their validity, but further research will be required to clarify and further demonstrate the justification of any such use of TAT to supplement episting diagnostic procedures. Total inability to resolve an intensely emotional or violent situation depicted here would have the same implications as similar omissions on some TAT stories. Leaving an episode with various potentially serious consequences without any solution whatever may be the clinician's most important indication that his client is unable to face reality in many of its most vital aspects, but must run away from trouble and let others take care of it for him.

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The Investigation of Projective Distance with Special Reference to the Rosenzweig Picture-Frustration Study[1]

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Summary: In one experiment 32 college undergraduates were administered the Rosenzweig P-F Study and two modifications with *instructions* that changed the projective distance between the subjects and the projective stimulus. Those modifications yielded mean P-F scores that did not differ significantly from those obtained with the standard instructions. The intentionally ambiguous instructions of the standard P-F Study were structured idiosyncratically by the subjects as having greater or less projective distance (determined by an inquiry). It was found that the P-F version perceived as having less projective distance yielded a greater frequency of overt-like responses than the P-F version perceived as having more projective distance. In a second experiment 225 high school sophomores and juniors were administered the P-F Study, as well as an experimental modification with adolescent stimulus figures. This modification yielded mean P-F scores that did not differ significantly from those obtained with the standard P-F Study. Peers, judging which of the subjects' paired responses were more typical of familiar overt behavior, failed to distinguish significantly between the two P-F versions. The results of both experiments are consistent with previous research concerning the relationship between projective distance and depth of response.

Although projective methods have been used in psychodiagnosis for the past half-century, the definitive relationship of the responses to the personality of the subject early became, and has remained, uncertain. It was the general purpose of this investigation to explore the concept "projective distance" in clarifying this relationship. Projective distance has been defined by one of the writers (S.R.) as the amount of demographic similarity or difference between the personality responding to the pictorial projective stimulus and the situation represented in the stimulus. The closer the likeness of the represented situation to the usual life situation of the examinee in terms of age, sex, color, occupation, recreation, etc., the less the projective distance may be assumed to be. It is postulated that there is an isomorphic relation of the projective distance of the stimulus and the depth level of the response such that the most projectively distant stimulus situations would have the greatest likelihood of eliciting an implicit response level, the least projectively distant stimuli, the greatest likelihood of eliciting the opinion level.[2] The overt level would correspond by this postulate to an intermediate projective distance. In terms of the total projective task, a similar result may be assumed to occur when the instruction to the subject modifies his ego-involvement. When the subject is required to respond in a way defined by some specific standard that is part of his reality self-concept, a more superficial level would presumably be elicited, while deeper levels would be elicited by instructions that relax this

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[1] This paper is based in part on a Ph.D. dissertation by the first author (R.B.): Washington University, St. Louis, 1964.

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[2] For the concept of levels in psychodiagnosis, see Rosenzweig (1950).

boundary.[3]

Previous research bearing on projective distance as manipulated by changes in instructions supports the assumption that greater projective distance leads to fuller projection (cf. Mirmow's 1952 report of two unpublished master's theses; also Sutcliffe, 1955). An early investigation, reported in summary by Rosenzweig (1960, p. 168), which is here interpreted as supporting the isomorphic postulate, was concerned primarily with the overt level of behavior. The findings from research on the manipulations of projective distance by altering the similarity of appearance between the subject and the stimulus figures are inconsistent. In the 1940's the designers of projective techniques assumed that more similarity (i.e., less projective distance) led to more projection (Symonds, 1939; Murray, 1943; Lasaga and Martinez, 1946; Henry, 1947; Thompson, 1949). In the 1950's experimenters tested and failed to support this assumption (Reise, Schwartz, and Cottingham, 1950; Korchin, Mitchell, and Meltzoff, 1950; Cook, 1952; Weisskopf and Dunlevy, 1952; Weisskopf-Joelson and Money, 1953). Murstein (1959, 1963) has recently concluded that as similarity, and possibly projection, increases, so do identification and ego-defensiveness, with the result that subject-pictorial figure similarity does not influence projection.

In keeping with the isomorphic postulate, the specific purpose of this investigation was to vary projective distance (1) by altering the instructions to the subject, and (2) by altering the age-appearance of the stimulus figures; and to observe resulting changes in the responses elicited.

The stimulus material used in both approaches was the Rosenzweig Picture-Frustration Study, Adult Form (designated in this investigation as P-FA). P-FA is a projective device with 24 cartoon drawings showing situations which are particularized by the figure on the right as frustrating to the figure on the left. The subject is instructed to insert in the empty balloon the first reply that occurs to him as being made by the frustrated character. A working assumption of the P-F Study is that subjects will identify with the anonymous, frustrated characters and thus project responses typical of their own behavior in similar everyday situations. Responses are scored simultaneously in two main dimensions: Type of Aggression and Direction of Aggression. Each of these dimensions includes three categories of response — extra-, intro-, and im-directed, and obstacle-dominant, ego-defensive, and need-persistent, respectively. In addition, a Group Conformity Rating and several measures of temporal trends are obtained. The scores are summarized on a Record Blank in terms of the percentage of the 24 responses subsumed under each of the six categories in the protocol of a given subject. Since every response is scored simultaneously for Type of Aggression and Direction of Aggression, each of these dimensions forms within itself an interdependent unit in which the sum of the three subordinate scores equals 100 per cent.

FIRST EXPERIMENTAL APPROACH

Hypotheses and Method

Materials. The standard P-F Study instructions read, in part: "Imagine what the other person in the picture would answer and write in the blank box the very first reply that comes into your mind." In the exploratory first approach these instructions were altered (1) to increase projective distance by asking the subject to respond as the *average* (other) person would (P-FV); and (2) to decrease projective distance by asking the subject to respond as, in his judgment, he would himself do in the given situation (P-FE). A Subject Inquiry was individually administered after P-FA to determine how the subject interpreted the standard (and intentionally ambiguous) instructions, i.e., the degree of projective distance he attributed to them. For exploratory purposes it was assumed, in null form, that altering the standard P-F instructions so as to *increase* projective distance between the subject and the pictorial figures will not be associated with a change in the frequency of the judged overt responses nor with changes in response scores. It was also assumed that altering the standard P-F instructions so as to *decrease* projective distance will not be associated with the same changes in judged responses nor response scores.

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[3] The related concept of "psychical distance" by Bullough (1912) is noteworthy in this context though his contribution was discovered by the writers long after the present formulation was crystalized. Moreover, Bullough's paper was mainly concerned with the field of aesthetics.

Subjects. Thirty-two college undergraduates, 22 males, ranging from 20.0 to 27.9 years with a mean age of 21.3 years, and 10 females, ranging from 19.7 to 40.2 years with a mean age of 22.4 years, served as subjects. Based on responses to the Subject Inquiry, these individuals were divided for certain aspects of the data analysis into those who responded to P-FA primarily for themselves in the pictured situations (the "self" group) and those who responded primarily for some other person (the "other" group). The former group contained 23 subjects ranging from 19.7 to 23.7 years with a mean age of 20.5 years. The latter group consisted of 9 individuals ranging from 20.1 to 40.2 years of age with a mean age of 24.3 years.

Procedure. P-FA was followed by the Subject Inquiry, by P-FV, and then by P-FE, at about evenly spaced intervals during a semester. Two weeks after P-FE was administered, each subject received the Level Check Optionary—a one-or two-sentence description of each of the 24 items in the P-F Study, with the description followed by the subject's own three typewritten, unscored responses to that item (P-FA, P-FV, and P-FE) in randomized order. Under each description the subject checked, by instruction, the response that most nearly resembled his overt, everyday behavior.

Each P-F version was scored twice by the experimenter independently, i.e., without consulting the earlier scorings, and with at least a week between scorings. A systematic comparison between the two independent scorings yielded an average agreement of 88 per cent. This result is within accepted scoring reliability of the P-F Study (Rosenzweig, Fleming, and Clarke, 1947. Scoring discrepancies were independently scored by an advanced clinical psychology student. The few responses for which this third scoring failed to match either of the first two were presented, each with its three scores, to a clinical psychologist who has extensive experience with the P-F Study. This person selected as final that one of the three scores he considered to be the most accurate.[4]

The analysis consisted of comparing the mean group scores of the P-F versions by t test and the individual scores from one administration to another by Pearson correlations. The hypothesis that the subjects were unable to differentiate between the three P-F versions, as to which one yielded answers most nearly resembling their overt behavior, was tested by chi square.

Results

When P-FA and P-FV responses were compared, none of the six Scoring Categories or GCR gave significant differences between the means. Of the correlations, all were positive and significant at the .01 level except intro-directiveness and obstacle-dom-

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[4] The authors gratefully acknowledge the scoring assistance of Doctors Loretta Cass, Dolores Grieve, and Peter Nathan. The last-named was a graduate student at the time of these experiments.

TABLE I--Chi Square Tests of the Frequencies of Self-Judged Overt Behavior as Represented in the Raw Responses to P-FA, P-FV, and P-FE.

Subjects	*N*	*P-FA Favored*		*P-FA Favored*		
		Number	%	*Number*	%	X^2
All	32	236	(55)	194	(45)	3.909*
"Self" Group	23	190	(58)	138	(42)	7.930**
"Other" Group	9	46	(45)	56	(55)	.794
		P-FV Favored		*P-FE Favored*		
All	32	236	(41)	338	(59)	17.771**
"Self" Group	23	190	(46)	224	(54)	2.630
"Other" Group	9	46	(29)	114	(71)	28.056**

*Significant at the .05 level.
**Significant at the .01 level.

inance, which were not significant. When P-FA and P-FE responses were compared, again none of the seven *t* test comparisons was significant and all the correlations were positive and significant except intro-directiveness and obstacle-dominance. When P-FV and P-FE responses were compared, the mean obstacle-dominance score was greater in response to P-FV than to P-FE, significant at the .05 level. All the correlations were positive and significant at the .01 level except obstacle-dominance, which was not significantly correlated, and ego-defensiveness, which was positive and significant at the .05 level. In summary, the means of the response scores were not significantly different among the three P-F versions. The correlations between P-F versions were generally high.

Differences among the three P-F versions in the frequencies of responses favored by the subjects as typical of their own overt behavior were found by chi-square analysis to be significant at the .01 level for all 32 subjects, for the 23 subjects of the "self" group, and for the 9 subjects of the "other" group.

Table I represents the chi-square tests of the differences between P-F versions in the frequencies of responses favored by the subjects as typical of their overt behavior. When P-FA was compared with P-FV, the subjects as a whole selected, by a bare majority (significant at the .05 level), as being more representative of their own overt behavior, the responses that had been given to P-FA. Only those subjects who responded to P-FA with themselves in mind were able to distinguish between their P-FA and P-FV answers. Conversely, the chi-square comparisons between P-FA and P-FE showed that although the subjects as a whole were able to distinguish between their P-FA and P-FE responses, significant at the .01 level, only the subgroup that responded to P-FA with others in mind made this distinction at a significant level (.01).

Interpretation

In this exploratory investigation the response scores did not differ, in general, between P-F versions. However, the amount of judged overt behavior increased as projective distance was decreased from P-FV through P-FA to P-FE. This significant result is a validation of the efficacy of changes in projective distance. The result also supports the validity of the Subject Inquiry. Those subjects who, on the Inquiry, reported answering P-FA with themselves in mind were not able to distinguish significantly between their responses to P-FA and P-FE, in the latter of which they were instructed to answer for *themselves*. Again, those subjects who reported answering P-FA with *others* in mind were not able to distinguish significantly between their responses to P-FA and P-FV, in the latter of which they were instructed to answer for the *average* person. This result, furthermore, is supportive of the isomorphic postulate; i.e., those subjects who answered P-FA at the implicit level, i.e., with others in mind, reacted to P-FE (decreased projective distance) with responses more like their overt behavior. Those subjects who answered P-FA at the opinion level or at the overt level, i.e., with themselves in mind, reacted to P-FV (increased projective distance) with responses less like their overt behavior.

SECOND EXPERIMENTAL APPROACH

Hypotheses

The three null hypotheses were as follows: A. In a projective instrument, altering the similarity between the subject and the pictorial figures in terms of age-appearance so as to decrease projective distance between the subject and the pictorial figures will not be associated with a change in the frequency of the judged overt responses. B. Altering the similarity between the subject and the pictorial figures will not be associated with changes in response scores. C. If found, changes in the frequency of the judged overt responses will not be associated in a consistent manner with changes in the response scores.

Method

Materials. Identical materials were used in both experiments I and II of the second approach. Besides P-FA, described above, there were three additional devices: an exploratory adolescent form of the Rosenzweig Picture-Frustration Study (herein designated P-FB); a Group Subject Inquiry, and a modification of the Level Check Optionary used in the first approach. P-FB differed from P-FA only in that the human figures for whom the subject wrote responses were depicted as adolescents. The Group Subject Inquiry was a brief questionnaire asking the subjects if there was a difference between the P-F versions they received and, if so, what the difference was. The Level Check Optionary was modified so that the judgment of which one of the paired responses to each item (P-FA and P-FB) more nearly resembled a given subject's overt behavior was made not by the subjects themselves but by peers. The responses were judged by three peers who had previously indicated on a check-list that they knew these particular subjects for at least a year outside of class as well as in class. No peer judged more than five subjects.

Subjects. The 114 subjects of Experiment I were in four study halls for high school sophomore and junior boys. The average age was 16.5 years. The 111 subjects of Experiment II consisted of the boys and girls of four history classes for high school sophomores and juniors. The average age was 15.1 years.

Procedure. The first groups in Experiments I and II were administered P-FA and, four weeks later, P-FB. The second groups received P-FB and then P-FA. The third groups were given P-FA both times, and the fourth groups received P-FB both times. Immediately after the last P-F version, the subjects were administered the Group Subject Inquiry, then were shown a list of the subjects in the first two groups of both experiments. On this list the subjects indicated which classmates they had known for over a year. From this information the Level Check Optionary was prepared and administered two weeks later. In the Optionary were listed the two replies to each P-F item given by the 54 available subjects in Experiment I and the 43 subjects in Experiment II.

The three judges for each subject were instructed to mark that one of the two responses to each item that more nearly resembled the subject's everyday behavior. Each P-F response was scored twice, independently, by the experimenter, with an average agreement of 91 per cent. This result is within accepted scoring reliability limits (Rosenzweig, *et al.*, 1947). As in the first approach, scoring discrepancies were independently scored by an advanced clinical psychology student, and the few remaining discrepancies were arbitrated by a clinical psychologist widely experienced with the P-F Study.

The data analysis was the same as for the first approach. The group mean scores of the two P-F versions, first and second testing, were compared by *t* test, and the individual scores from one administration to another were compared by Pearson correlations. The hypothesis that the peers were unable to select responses from either P-F version as more nearly resembling the subject's everyday behavior was tested by chi square.

Results

In Experiments I and II the correlations between the first and second testings were positive for both the control and experimental groups, ranging between the .50's and .80's, with a few minor exceptions. The differences between the mean scores were generally not significant. The few significant differences in mean scores which did appear seemed to be due to the sequences of administration rather than to the P-F versions themselves.

Table II represents the results of the chi-square tests of the frequencies with which the judges selected responses from each of the two P-F versions. The judges in both experiments I and II failed, in general, to select responses from either P-F version as being more typical of a given subject's overt behavior. There was one exception: the judges of the subjects in the first experiment group of Experiment I selected P-FA responses rather than P-FB responses as more typical of the subjects' everyday behavior, a difference significant at the .01 level. The Group Subject Inquiry showed that the stimulus change had been unobserved by all but one of the subjects.

Interpretation

The first two null hypotheses were not rejected by the evidence, and thus the third was not tested. Projective distance, when altered by changing the similarity in age-appearance between the subjects and the stimulus figures, was not associated with statistically significant score differences nor with statistically significant differences in the amount of elicited behavior judged as overt by peers of the the subjects. This result was consistent with the conclusions of previous investigations that changing the similarity of appearance, and thus reducing projective distance, does not increase projectiveness, probably because as identification is enhanced, so is ego-defensiveness.

DISCUSSION

In both experimental approaches, the results of the judgments of responses considered typical of overt behavior, presented in Table I and II, could have been strongly influenced by unusual consistency of a few judges. This possibility was examined by means of frequency-plots of the judges' choices, by P-F version. These

TABLE II—Chi-Square Tests of the Frequencies of Judged Overt Behavior as Represented in the Raw Responses to P-FA and P-FB

		P-FA		P-FB		
		Favored		*Favored*		
	N	*Number*	%	*Number*	%	X^2
Experiment I	54	696	(54)	584	(46)	9.626**
Group with P-FA 1st	29	382	(56)	299	(44)	9.874**
Group with P-FB 1st	25	314	(52)	285	(48)	1.309
Experiment II	43	526	(51)	498	(49)	.712
Group with P-FA 1st	21	248	(50)	252	(50)	.018
Group with P-FB 1st	22	278	(53)	246	(47)	1.834

*Significant at the .05 level.
**Significant at the .01 level.

frequency-plots revealed that the differences, significant as well as not significant, were dependent on the choices of a majority of the judges, rather than only a few.

The present research concerned the overt level of behavior, and thus filled a gap left by most previous investigations. The present investigation also dealt with projective distance without the contaminating factor of social desirability which is present in many earlier investigations.

In terms of the general orientation, only one of the two independent variables (changes in instructions) had an effect on the dependent variables. The other independent variable (change in similarity of age-appearance between the subjects and the stimulus figures) did not influence the dependent variables. Only the first approach thus directly supported the isomorphic postulate. The results of both approaches are, of course, limited to the conditions of the experiments in question. Since it is recognized that the experimental adolescent form used in this research is only one of several variations that might be explored, any general conclusions as to the advantages of such a special adaptation of the P-F Study for adolescents must await further research.

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Predicting Suicidal Ideation from the Rorschach: An Attempt to Cross-Validate

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Summary: This study was an attempt to replicate an earlier study which demonstrated a significant relationship between suicidal ideation and response to the D6 area of Rorschach Card VII. From a population of 299 hospitalized psychiatric patients, 53 Ss had responded to this area. These were matched on a man-to-man basis for age and sex with non-responders. The two groups were closely equated for diagnosis, total number of Rorschach responses and per cent of small detail responses. When compared for the presence of suicidal ideation, the groups were not found to differ significantly. Separate comparisons of sub-groups of schizophrenics, depressives, and neurotics also failed to confirm the prediction.

Sapolsky (1963) has reported a significant relationship between suicidal ideation and response to a small detail (D6 area; Beck, 1950) on Rorschach Card VII. His hypothesis was derived from the psychoanalytic conception suggesting that suicidal ideation reflects an unconscious desire to return to the maternal womb. Since the lower center detail on Card VII is frequently perceived as a vaginal area, patients with suicidal ideation might be expected to respond more often to this area than patients who are not suicidally ideated. The possibility of predicting suicidal ideation from the response to a small detail (regardless of content) of a single Rorschach card appears so simple that a replication of this study appears warranted.

METHOD

Ss were selected from the records of 299 hospitalized psychiatric patients at the Milwaukee Psychiatric Hospital. All these patients had been tested by one of the investigators (LB) during the preceding two years. From this population, 53 Ss responded to the D6 area of Card VII, and became the experimental group, designated as *Responders.* There were 21 males and 32 females in this group, ranging in age from 15 to 67 years (mean = 43.2).

From the remaining population of *Non-Responders,* 53 patients were selected for the control group. Ss in the control group were matched, as closely as possible on a man-to-man basis, to the Ss in the experimental group for the variables of age and sex. Thus, this group also consisted of 21 males and 32 females ranging in age from 16 to 71 years (mean = 43.1). The two groups were closely equated for diagnosis, but not on a man-to-man basis (See Table I). There were no significant differences between the two groups in their total number of responses or in the percentage of small detail responses.

TABLE I—Distribution of Psychiatric Diagnoses

Diagnosis	*Responders*	*Non-Responders*
Neurosis	18	19
Manic Depressive	1	1
Schizophrenia	15	14
Depression	17	16
Brain Syndrome	2	3
	53	53

The entire hospital record for each of the 106 Ss was examined for indications of suicidal ideation. Following Sapolsky, "A patient was considered to have been suicidally ideated if he had been hospitalized because of suicidal threat or attempt, or if during his stay there was at least one mention of suicidal thought or actual attempt" (Sapolsky, 1963, p. 333). Since the ratio of psychiatrists to patients in the Milwaukee Psychiatric Hospital is 1:8, hospital records are carefully maintained, thus assuring careful recording of any suicidal thoughts or attempts.

RESULTS

The distribution of suicidal ideation for the 106 Ss in this study is shown in Table II. A chi-square test[1] yielded a value of .16 (.70 p .50).

TABLE II—Comparison of Responders and Non-Responders for Presence of Suicidal Ideation

	Suicidal Ideation	*No Suicidal Ideation*
Responders	22	31
Non-Responders	19	34

$\chi^2 = .16$

Thus, Sapolsky's prediction that *Responders* would show a significantly greater occurrence of suicidal ideation than *Non-Responders* was not upheld.

Since Sapolsky's study was concerned primarily with schizophrenic Ss, the chi-square test was performed on the 29 schizophrenics in our sample (See Table III). With a chi-square value of .015 (.90 p 80), there was again no support for Sapolsky's hypothesis.

TABLE III—Comparison of Schizophrenic Responders and Non-Responders for Presence of Suicidal Ideation

	Suicidal Ideation	*No Suicidal Ideation*
Responders	5	10
Non-Responders	4	10

$\chi^2 = .015$

Believing that suicidal ideation might be most prevalent among depressives, the distribution of suicidal ideation within the 33 Ss in this group was subjected to a chi-square test (See Table IV). The obtained chi-square value was .04 (.90 p .80). Thus, among depressed patients, no support was found for the prediction that *Responders* would demonstrate more suicidal ideation than *Non-Responders.*

TABLE IV—Comparison of Depressive Responders and Non-Responders for Presence of Suicidal Ideation

	Suicidal Ideation	*No Suicidal Ideation*
Responders	10	7
Non-Responders	9	7

$\chi^2 = .04$

The distribution of suicidal ideation in the other major diagnostic category in our sample (neurotics) was likewise examined (See Table V). For the neurotic group the chi-square value was .22 (.70 p .50), again offering no support for the prediction.

TABLE V—Comparison of Neurotic Responders and Non-Responders for Presence of Suicidal Ideation

	Suicidal Ideation	*No Suicidal Ideation*
Responders	8	10
Non-Responders	6	13

$\chi^2 = .22$

DISCUSSION

Although our findings fail to confirm Sapolsky's, it should be pointed out that our Ss were limited by those who were designated *Responders* and *Non-Responders,* according to Sapolsky's definition. There were, therefore, minor differences in diagnostic categories and matching techniques in the two studies. The sample sizes were quite similar; Sapolsky used a total of 48 control and 48 experimental Ss in the three parts of his study, while our population consisted of 53 control and 53 experimental Ss. The chief difference appears to be in the fact that 77 per cent of Sapolsky's subjects who responded to the one Rorschach area also demonstrated suicidal ideation, as compared with only 42 per cent in the present study. When the schizophrenics in our sample were extracted for separate study, the matching procedures were identical to Sapolsky's; Ss were matched on a man-to-man basis for sex-age-diagnosis. Yet 70 per cent of Sapolsky's schizophrenic patients showed suicidal ideation if they responded to the one Rorschach area, as compared with 33 per cent in our population. Even among our depressed patients, where the likelihood of suicidal ideation might be expected to be greatest, no significant difference could be demonstrated between *Responders* and *Non-Responders.*

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[1] All chi-square values reported in this paper are based upon statistically derived expected frequencies, and Yates' correction for continuity has been applied (Edwards, 1954).

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What Do We Really Measure in "Testing the Limits" in the Rorschach?

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Summary: Using the Rorschach as one instrument in the selection of industrial- and business-personnel, the author become aware that in the testing-the-limits (ttl) phase individuals showed a strong tendency (and consistency) in either accepting or rejecting *all* suggested concepts. The popularity-level of the suggested concept appeared to operate at the best on a secondary level in influencing acceptance or rejection of the concepts.

Three studies described in the present paper conclusively support the existence of such a consistent tendency, at least among normal *Ss* of average or above-average intelligence.

This finding is interpreted as proof that the ttl measures a different dimension than the Rorschach-test proper.

The nature of the dimension is still questionable but indications are that it is a measure of a person's willingness (and ability) to look at problems, or situations, in a genuinely flexible manner upon demand from persons in authority.

The generally accepted purpose of the testing-the-limits (ttl) phase of the Rorschach is to

> "establish *S*'s latent potential to produce responses . . . . . in directions avoided or not clarified in his spontaneous production; . . . . . the importance of this phase is in inverse proportion to the richness of the two other phases, the performance proper and the enquiry." (Klopfer and Kelly, 1946, pp. 51-52.)

In other words, this phase is regarded as constituting an extension of the "performance proper" and the "enquiry" and its results are interpreted as measuring the same dimension as the test-proper, except perhaps in a more refined manner.

The present study reports findings which suggest that the ttl measures an entirely different dimension, at least in normal *Ss* of average (or above-average) intelligence. The nature of the dimension is more doubtful than its existence; pending further investigation, the author believes that the ttl may well measure the willingness (or unwillingness) of *Ss* to accept suggestions from others, especially persons in position of authority.

BACKGROUND

The author has been using the Rorschach (R) routinely as one instrument in the assessment of applicants for industrial jobs, from executive to foreman level.

One *S*, a mechanical engineer, had produced a rich protocol which contained all major scoring categories and was devoid of obvious pathology; however, it contained practically no popular responses. The ttl was therefore directed towards testing for acceptance (or rejection) of this category. To the author's surprise, this effort met with complete failure. The bears on Card II. . . . . "could not be bears; they *could* be dogs; bears would not have their ears at just this angle, but dogs might." Similarly, the green bottom D on X was rejected as "caterpillar" because "caterpillars could not have the two little hairs sticking out of their heads; but it *could* be a pair of tomato-worms because they just might have such hairs." Every other suggested concept was dealt with in the same manner, namely by denial of its appropriateness and substitution of a very similar concept. It is ap-

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[1] The author gratefully acknowledges the inspiring assistance received from Prof. E. S. W. Belyea of the Univ. of British Columbia, which extended to a critical review of all the material presented in the present paper, the supervision of the second study and participation in the design as well as the execution of the third study reported herein.

propriate to remind the reader that S was a mechanical engineer, not a zoologist.

In the interview, S was asked the routine question whether his work had ever been criticized by anyone. He replied: "The only criticism I can remember is that I am unwilling to go along with any suggestions by my superiors, but this is of course quite unjustified." He then went to some length to produce convincing evidence of his successful efforts to elicit suggestions from his *subordinates;* he also related the lengths he went to to make sure that these suggestions were actually put into practice.

The unusual ttl performance and the subsequent statement in the interview made the author wonder whether the former was in fact a "demonstration" of the trait which S had been criticized for. The examiner in the industrial testing situation may well appear to have considerable authority and may therefore elicit behavior from Ss which they typically display towards persons in authority. If a reluctance to re-examine problems or situations in terms suggested by superiors in industry would be reflected by a refusal to accept suggested concepts in the ttl, then the ttl might be a simple and welcome device to discover such tendencies in a rather subtle manner.

In the months following the incident described above the author spent more than ordinary time on the ttl phase, looking for possible repetitions of the engineer's pattern among other applicants. Two more individuals showed a similar, though not quite as strong a tendency to substitute all suggested concepts with more or less similar concepts of their own. Both of them admitted that they had been criticized by their wives and friends as being extraordinarily "bullheaded" and argumentative, and both of them denied that these criticisms were justified. The phenomenon seemed worth more careful scrutiny.

PILOT PROJECT

The author decided upon the following steps in setting up a pilot project:

1) Compile a list of "concepts-to-be-suggested"; The concepts should be of relatively well-known popularity-levels; there should be enough of them to form a test of reasonable length (to get adequate reliability). Six responses per card appeared to fulfill the latter requirement.
2) Design a scale to "measure" Ss' level of willingness (or unwillingness) to accept suggested concepts.
3) Obtain pairs of Ss so that one member of the pair would be known to "go along readily with suggestions of superiors" while the other member would be known to be "bullheaded." The experimenter would of course be kept naive of the character of each member of the pair until he administered and scored the ttl, whereupon he would attempt to post-dict which classification each person belonged to.

Standardization of suggested concepts. Beck (1944) provides a list of concepts graded according to their levels of popularity in the clinical setting. Since however these levels were not established in the "industrial setting," it seemed more appropriate to obtain concepts of relatively known popularity level among presumably normal industrial applicants.

A local firm of industrial psychologists supplied the Cox-Forced-Choice-Rorschach protocols of 74 applicants. In this form of the R the person is presented with the card and three sets of ten concepts. He is the instructed to select the most appropriate concept from each of the three sets, i.e. three concepts per card. The procedure is repeated for the ten cards.

The 74 protocols were analyzed for frequency of selection of each of the 300 possible responses. Nine concepts were selected for each card, three each from the following three levels of popularity:

a) Concepts which had been selected by more than 20 per cent of the "base group"; the "popular concepts."

b) Concepts which had been occasionally selected but by not more than 5 per cent of the base-group: "semipopular concepts."

c) Concepts selected by no one in the base group: "unpopular concepts."

The concepts were typed individually on file-cards and their popularity level coded on the back of each card. The nine cards pertaining to each R-card were placed in separate envelopes; before administration, they would be shuffled so as to eliminate any effect which may depend on a given order of presentation in terms of popularity-level.

The concepts applicable to cards I, II, VII, and VIII are listed in Table I; as will be shown shortly, the use of only four cards seems to be quite adequate for the purpose of the test. (All ten cards were used however in the pilot-project).

TABLE I

Suggested concepts for cards I, II, VII and VIII (used in the third study)

"a" marks popular, "b" semi-popular and "c" unpopular concepts

Card I.	Card VII.
a.1. Bat hovering	a.1. Lambs gambolling
a.2. Butterfly flying	a.2. Aerial view
a.3. Pelvis	a.3. Women gossiping
b.1. Clouds	b.1. Elephant's trunk
b.2. Messy black stuff	b.2. Statue
b.3. Animal's head	b.3. Feathered head-dress
c.1. Bell	c.1. Dog's head
c.2. Cliff	c.2. White lamp
c.3. Statue	c.3. House & garage
Card II.	**Card VIII.**
a.1. Black bear's head	a.1. Medical drawing
a.2. 2 Scotties	a.2. Flesh-colored orchids
a.3. 2 Clowns	a.3. Colored insignia
b.1. Bird	b.1. Red paint
b.2. Smoke	b.2. Green tree
b.3. White fish	b.3. Heaven & hell
c.1. Indian head	c.1. Pink cushion
c.2. George Washington's head	c.2. Book
c.3. Boot	c.3. Pink coat

The scale. An eight-point scale was developed for the pilot-project. Zero-value represented the most enthusiastic acceptance, demonstrated by spontaneous elaboration of the suggested concept in appropriate, but unusual terms—e.g. (Bears, card II): "Oh yes—and they are after a piece of meat!" Substitution of the suggested concept (such as the behavior of the engineer described earlier) scored 7. Scores 2-6 were given to "intermediate" reactions. This scale is not described in full detail because a much simpler and "self-scoring" 4-point scale, developed for the third study, appears to give similar and comparable results. (See this scale below, under "Third study.")

Administration. Subject is introduced to the test in the standard manner except he is asked to tell the *first thing* he sees in the card, which the card reminds him of etc. When he responds, examiner says: "Fine, now I want you to see . . . . . in the blot." The procedure is repeated until S has responded to six suggested concepts per card (two at each level of popularity).

It will be remembered that there are actually *three* concepts available at each popularity level, a total of nine per card. The extra concept at each level is available in case S either "uses up" a concept as his spontaneous production, or he remarks: "I have seen this before you asked me." Such a response would not be scored, and a "spare" concept would be used instead.

A spontaneous response is asked for first; the expectation is that negativistic tendencies may emerge more readily when a person has already decided for himself "what the blot *really* represents." In other words, he is asked to *change* his perception after he committed himself so something different first.

Scoring. Each response is scored according to the scale. The scores for each card are added up and divided by the number of responses; in other words, a mean score is developed for each card. (This procedure is necessary because occasionally a *S* uses up one concept as his spontaneous production and a second concept at the same popularity level becomes unscorable because *S* announces that he has seen that concept spontaneously, too. If this happens, only one scorable response remains in one category, or a total of 5 per card instead of the expected 6. By using the mean score the problem of possible unequal responses per card can be circumvented).

The total test-score is the sum of the mean card-scores.

Subjects of the first study. Top executives of several local Companies were asked to designate one or more pairs of their professional (or executive) employees so that one member of each pair would represent a type "very ready to go along with new ways of looking at a problem, or novel ways of dealing with a situation when this is suggested by his superior." The other member of the pair would be the "bullheaded type who, once he makes up his mind how to handle a situation is very difficult to persuade to alternate courses of action; the 'yes-but' man." The author was of course kept naive as to which end of the presumed continuum each individual represented until the tests had been administered and scored.

Results. Due to general resistance of several "bullheaded" candidates towards participation in any research-project, the author could only obtain 8 pairs of subjects. The results, in terms of the original criterion, were equivocal. Later discussion with the executives who supplied the Ss showed that the instructions for selection were apparently not clear enough. To illustrate one, rather extreme case: upon being informed that he had apparently post-dicted incorrectly, the author expressed his surprise to the manager who selected the two Ss. The individual selected to represent the "inflexible" pole was in fact somewhat less receptive to the suggested concepts than the average person. The presumably "flexible" man however had one of the highest rejection-scores the author could remember. Acting on hunch, the author suggested that the latter individual may carry out definite instructions very meticulously but he couldn't believe that, once this man made up his mind about something he could be swayed from his convictions. The manager thereupon replied: "It is amazing that you should have discovered this; we recognized this about a year ago and have actually started a project with a management-consultant to help this person towards more flexibility." In some manner the manager had confused the accurate carrying out of definite instructions with "flexibility."

As mentioned earlier, all 10 cards were used in this project. A correlation of scores on odd vs. even cards yielded an $r = .864$ which increased to .926 when corrected by the Spearman-Brown formula, significant at $P < .005$.

Obviously, the instrument was measuring *something* at an unusually high level of reliability.

Scores obtained on cards III, IV, VII and VIII (totalled) correlated $r = .824$ with the 10-card score. It was therefore decided to use only four cards in any future study.

SECOND STUDY

The difficulty of securing adequately selected and presently employed Ss led to a temporary abandonment of this avenue of approach towards validation. However, another study which was designed primarily to clarify certain (partly contradictory) findings reported by Rokeach (Rokeach, 1960) served to gather more material regarding the problem under discussion.

This second research was undertaken by the author with students of the 1961 summer-session of the University of British Columbia, in partial fulfilment of the requirements of a degree of M.A. in psychology. One hundred-and-eighty ses of Commerce, Education, Psychology and Political Science were given Rokeach's Dogmatism-scale, an instrument somewhat similar to the well-known California F-scale (Adorno *et al.*, 1960). From this group three groups of 17 male students (a total of 51) were selected for individual testing with other instruments. Two of these groups were composed of students with dogmatism ("d"–) scores 1.6 σ above, and below, the total group's mean d-score, respectively; the third group consisted of students with d-scores very close to the group-mean.

Subsequently administered tests included two types of Kohs-block problems (Rokeach, 1960), the Jackson-version of the Witkin Embedded Figurest test (Jackson, 1956) as well as the test which is the subject of this paper. For reasons mentioned earlier only four cards (III, IV, VII & VIII) were used.

It was hypothesized that "open minded" (low d-score) persons would also be receptive to suggested R-concepts: i.e. that low d-scores and low R-acceptance scores would go together. The Witkins- and Kohs-scores were also going to be scrutinized for possible relationship with the R-acceptance scores but no prediction was made in this regard.

The results failed to demonstrate any relationship between the R-acceptance scores and any of the others. The R-acceptance scores for cards III-IV however correlated with the scores for cards VII-VIII at $r = .828$ (after correction by the Spearman-Brown formula for the 4-card total); this r is significant at $P < .005$.

The mean score for the group of $N = 51$ was $\overline{X} = 16.01$, $\sigma = 2.471$. Since the scoring-scale was reduced in the third study from the present 8-point to a 4-point scale, the data reported may be made roughly comparable to the data reported for the third study by dividing both $\overline{X}$ and σ by two.

If we consider scores of 0-3 as indicating "acceptance" and scores of 4-7 as indicating "rejection," we can examine the proportion of times at which concepts of each popularity-level were accepted or rejected by the total group. The results show that popular, semi-popular and unpopular concepts were accepted in 66.5, 51.5 and 37.5 per cent, respectively. Obviously, the popularity-level of a concept influences its chance of being accepted or rejected. This influence is however overriden by *Ss'* general tendency to either accept or reject concepts generally, as proven by the high split-half r.

Discussion of the second study. The second study supported the assumption that the R-acceptance score measures something reliable and characteristic in a person. The lack of correlation of this score with the Kohs-scores (which are well-known measures of intelligence) suggests that whatever R-acceptance scores measure, it is not intelligence. Similarly, R-acceptance scores measure something different from what Rokeach's d-scores or the Witkin-test tap.

One question regarding the significance and reliability of the R-acceptance scores remained open. Could the consistent scores be an artifact of the examiner's unconscious wishes? These could influence the outcome of the tests in two ways: by influencing the *Ss* in a subtle manner to respond consistently, and/or by (unconsciously) scoring the responses to fit expectations. The third study was undertaken to eliminate these possible sources of contamination and at the same time examine whether R-acceptance scores correlate with yet another personality-measure in the area of flexibility-rigidity.

THIRD STUDY

In this study, three groups of ten *Ss* each were tested, one group by the author and the two other groups by graduate students in psychology at the University of British Columbia[2]. The student-examiners were completely naive as to the purpose, background or hypotheses involved in the test.

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[2] The author wishes to express his thanks to Messrs. M. Gilford and A. Posthum for their participation in this project.

The employment of naive examiners would of necessity eliminate any bias which may result from unconscious pressure upon *Ss* to give consistent responses. It would not deal however with possible contamination due to "mis-scoring." To eliminate this source of variance, a self-scoring method was introduced; at the same time, the scale was reduced to four points from the original eight. It worked like this: after *S* gave his first response to a suggested concept, he was handed a card with four statements typed on it and instructed to select the statement which most nearly applied to the suggested concept. The four statements were (with their score-values):

1) "Yes—I can see that as well (or even better) than what I saw first myself" .... Score 1
2) "Yes—but I really have to stretch my imagination quite a bit to see it that way" .... Score 2
3) "No—there might be some similarity to it in the blot but really not enough .... Score 3
4) "No—I can't see that at all" ...... Score 4

If *Ss* gave an occasional evasive answer, they were simply prodded to select one of the four statements.

It will be remembered that in the first study all ten R-cards were used. In the second study, cards III, IV, VII and VIII were used. To make sure that the results were not "card-dependent," this study applied cards I, II, VII and VIII.

The *Ss* examined by the author were foremen of a plywood-plant. The author held the position of plant-manager for some period previously, and the position of Vice President of Personnel and Industrial Relations at the time of the study. In other words, he would represent an authority-figure to this group of *Ss*. The student-examiners were instructed to select other (male) students for testing, with no other restrictions attached.

Along with the test under discussion, *Ss* were also given the Gough-Sandford Rigidity Scale (Rokeach, 1960, p. 418). In order to get as "true" responses as possible, this test was administered in an "anonymous" manner: *Ss* were instructed to tell the examiner only *how many* (but not *which*) of the 22 statements which comprise the scale they considered descriptive of them. It was felt that this approach would be less threatening to *Ss* than asking them to "commit themselves" to specific items of the test.

Hypotheses. Three hypotheses were formulated:

1) The split-half reliability (scores on cards I-II vs. VII-VIII) would be in the range of r=.80 as in previous studies.
2) The mean score of the author's group of foremen would be lower (more accepting) than the scores of the two groups handled by the student examiners. The authority-relationship in the industrial setting would be expected to produce more conforming behavior than the relatively independent, non-authoritarian setting of the university.
3) A positive relationship would obtain between R-acceptance scores and the Gough-Sandford test scores. (The latter was simply the number of statements acknowledged by *Ss* as being descriptive of them).

Results. Table II shows the means, standard deviations and split-half correlations for each group; it also gives these data for the combined groups, and the comparable data for the *Ss* second study. The data presented for *Ss* of the second study are divided by 2 to adjust for the 8-point scale used in that study vs. the 4-point scale used in the third study.

In terms of the hypotheses postulated, the results may be interpreted as follows:

1). The overall split-half correlation surpassed the .80 level. This again indicates that the R-acceptance

TABLE II—Mean R-acceptance Scores, Standard Deviations and Split-half Correlation Coefficients of the Three Groups of the Third Study, and Transformed Comparative Data for the Second Study Group.

	N	$\overline{X}$	σ	r	d.f.
U.B.C. Group 1	10	10.06	1.69	.83**	8
U.B.C. Group 2	10	10.43	1.62	.62*	8
Foremen	10	9.26	1.72	.98**	8
Combined	30	9.92	1.67	.82**	28
Second Study	51	8.03	1.23	.83**	49

*Significant beyond $P < .05$
**Significant beyond $P < .005$

score measures something consistently and reliably.

2). The mean score of the author's group varied in the predicted direction from the mean of the student examiners' groups. The difference didn't reach statistical significance but this may well be due to the relatively small size of the groups.

3). No consistent (or significant) relationship was found between the R-acceptance and the Gough-Sandford scores. Apparently the two instruments don't measure the same dimension.

CONCLUSION

The results of the three studies show conclusively that:

1) There is a consistent tendency, at least in normal individuals of average or higher intelligence to either accept or reject suggested concepts on the Rorschach.

2) The probability of acceptance or rejection of a concept varies only secondarily as a function of popularity-level.

3) Therefore in the ttl, we measure a dimension which is different from whatever the Rorschach-test measures.

The nature of the dimension is still open to question. The author does not feel as yet prepared to give up the expectation that it will be found to measure willingness to re-structure one's percepts and concepts along lines suggested by others, especially persons in authority. By "re-structuring," more is meant than mere surface-conformance with instructions originating from higher-up. The term is used here to designate readiness to re-examine a problem, or a situation from many different points of view, each potentially as valid as any other. The author would not be surprised if future research would find a positive relationship between empathy and willingness to accept suggested R-concepts as well as a negative relationship between this dimension and "ascendance" or (or "assertiveness"). Ease of concept-formation may also influence R-acceptance.

In the meantime—and based only on anecdotal evidence—this approach may add additional clinical insight into persons' level of flexibility.

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Color on the TAT[1]

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Summary: This study tested two hypotheses concerning productivity and emotional tone as a function of chromatic TAT cards. Two groups of 13 males and 13 females were presented with achromatic and chromatic slides of cards 2, 3BM, 4, 6BM, and 7BM, in counterbalanced order. The main effects of sex membership, order of presentation of stimuli, and color were evaluated. Color did not have a measurable effect. However, a conceptual and aesthetic effect may occur. Males and females differed with respect to emotional tone and response productivity.

Serious consideration has been given to Baughman's (1958) admonition to study the stimulus quality which evokes the response. The most recent review of the Rorschach literature indicates that 11% of the studies from 1958 to 1963 were concerned with the stimulus (Dana, in press). TAT stimulus value, as suggested by one reliable score, is directly related to the number of cards used (Dana, 1956). In addition, mood may be determined by the specific picture (Brackbill, 1951; Garfield & Eron, 1948). These studies indicate two relevant dimensions of the response to color: (a) stimulation of affect and, more generally, (b) stimulation of interpretable personality data; i.e., responsivity or productivity.

Rorschach considered color to be representative of emotion (1942). In a review, Fortier (1953) described color as a testable representation of affect, while affect is a conscious element of unconscious process. Affect could thus be studied by the response to color. Siipola (1950) contended that increased reaction time to color was independent of emotional impact when subjects were required to integrate color and form perception on the Rorschach. Drechsler (1960), however, separated the response to color from a word association task. Under these conditions the chromatic stimuli did produce a significant disturbance in response pattern. Wexner (1954) demonstrated that colors were related to mood tones; Schaie (1951) focused attention to these mood tones as evoked by color.

Thompson and Bachrach (1951) compared achromatic and chromatic TAT cards on Aron's affective content scale and word count. Some scale scores did change on some cards with a group administration. Brackbill (1951) found that chromatic cards individually administered to psychiatric patients stimulated depressive mood and increased reaction times. Lubin (1955) used word and theme counts per story with individual and group administration. Responsivity increased with the chromatic stimuli. Horne and Bova (1960) found no differences in productivity (time and number of titles used) between achromatic and chromatic stimuli. Bieliuskas and Heffron (1960) compared H-T-P productions using pencils and crayons. The main effect of color was not significant, but sex membership and order influenced response. Weisskopf-Joelson and Foster (1962) used four variations of color and kind of figure on the CAT. High scorers on their responsivity measure, the transcendence index, responded more to colored cards while low scorers were less responsive to color.

These studies suggest that while color is related to affect, the conditions under which this relationship obtains remain unspecified. In addition, responsivity has been variously defined, with equivocal results. We do not know to what degree the affect stimulating quality of color is presented scorably in TAT response. Individual and group administrations of various TAT-like tests have been used. Since it has been shown that presence of the examiner is inhibiting (Bernstein, 1957), group administration should facilitate expression of affect.

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[1] This study is based on a Master's thesis, West Virginia University, by the first author (Johnson, 1963) under the direction of the second author.

The present study was designed to explore some of the parameters of the color-affect relationship, sex and order of presentation. Eron's emotional tone scale, a five point rating scheme with positive, neutral, and negative points, was used to measure affectivity (Eron, Terry, & Callahan, 1953). Three responsivity measures were used: Q-sort, transcendence index, and word count. The Q-sort (Stephenson, 1959) assessed personality information reported in a fantasy production. Stories were sorted in a nine interval normal distribution from least to most personality data present. The transcendence index (Weisskopf, 1950) was used to measure amount of fantasy material and represents the mean number of comments per card which go beyond simple description. This study was designed to test the null hypotheses (1) the addition of color will result in no change in the affect reported in a subject's fantasy and (2) the addition of color will result in no change in responsivity. A general question is also posed: can the effect of any projective stimulus be qualified?

METHOD

Repeat and scorer reliabilities for the four measures were assessed in a preliminary study. Adequate scorer reliabilities were obtained (range = r .75 to .98); repeat reliabilities for the emotional tone and word productivity scales were low. Significant intercorrelations were obtained between Q-sort and transcendence index, between Q-sort and word count, while the relationship between word count and transcendence index was significant for one card only.

A standard, abbreviated set of Murray TAT cards 2, 3BM, 4, 6BM, and 7BM, (Dana, 1956) was painted using water colors to avoid a texture effect.[2] These cards were photographed under constant conditions using black and white and color films. Achromatic and chromatic slides were processed from these films and projected through a standard two inch slide projector.

Subjects served as their own controls; two groups of 13 males and 13 females, were tested in counterbalanced order (achromatic to chromatic = AC order; chromatic to achromatic = CA order), using identical instructions for each administration.

Values of the emotional tone scale were transformed into positive integers to facilitate analysis. A 2x2x2 Latin Square Plan 9 as outlined by Winer (1962) was used to analyze data from each scale for each card and over all the cards.[3] The main effects of order of presentation of stimuli, color, and sex membership and their interactions were evaluated.

RESULTS AND DISCUSSION

The transcendence index demonstrated that fantasy response to AC order was significantly greater than response to CA order for cards, 3BM, 6BM, and 7BM ($p<.05$). The AC order elicited greater response for 6BM for both Q-sort and word count ($p<.05$).

Sex membership, which significantly influenced responsivity, also affected the emotional tone of the stories. For the overall set, both males and females produced happy fantasies, but the responses by females approached a neutral value while the male responses were happier ($p<.05$). Females were more productive than males were more productive than males on the responsivity measures. For the productivity measure (word count), the differences were significant for the sets and card 6BM (p<.01) and for cards 4 and 7BM (p<.05). The amount of personality information (Q-sort) reported by females was greater than that by males for the overall set, cards 6BM, 7BM (p<.01), and 3BM (p<.05). This effect was significant with respect to the amount of fantasy material present for 3BM, 4, 6BM, and 7BM (p<.01). Table I summarizes the influence of main and interaction effects.

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[2] The authors wish to express their sincere thanks to Mr. John D. Clarkson, Chairman, Art Department, West Virginia University for painting the cards.

[3] The authors wish to express appreciation to Dr. Arthur R. Thomas for statistical consultation.

The order-sex and order-color interactions were also effective in influencing responses. As a result of the order-sex interaction, males report happier 6BM stories in the AC and in the CA series (p<.05). Males also respond with happier tones than females to the overall AC series set (p<.01).

The most positive fantasy productions can be gathered from males tested in an AC order. This interaction is effective when responsivity measures are used; however, females are more productive than males. Response production to 6BM is greater for males and females when tested in the AC series (p<.01). Females were more responsive to 6BM in the AC series than males are to the same card in the CA series (p<.01). The amount of personality information present, as a response to 7BM, was influenced by the interaction of order and sex membership. Females were more responsive in the AC series (p<.05), and reported more in this series than males in either AC or CA series (p<.01). For research purposes, maximum personality information for 7BM obtains from testing females in the achromatic to chromatic order.

The responsivity measures were also sensitive to changes resulting from an order-color interaction. Response productivity to chromatic cards was significantly higher for 6BM and the overall set when chromatic precede achromatic stimuli. This relationship (p<.05) also obtains with 6BM for personality information and fantasy material. Response productivity to the overall set of achromatic cards in the CA series is significantly diminished from response to the same set of cards in the AC series. This effect is consistent for card 6BM for personality information and fantasy material (p<.01). Amounts of personality information and fantasy material from chromatic stimuli were greater when color was preceded by no-color for 6BM than the response to achromatic stimuli preceded by color (p<.05). Response productivity to 6BM was greater for the achromatic card presented first than for the chromatic

TABLE I—Summary of Significant Effects and Interactions on Each of the Scales for the Cards and Sets (A = Order; B = Color; C = Sex Membership)

Scale	Sets	2	3BM	4	6BM	7BM
Emotional Tone	C* AC*				AC*	
Word Count	C** AB*	A**		C*	C** AB** A*	C*
Q-Sort	C**		C*		AC* C** AB* A*	C** AC*
Transcendence Index			C** A*	C**	C** AB* A*	C** A*

* p <.05
** p <.01

card presented first; the response to the achromatic card was greater than the response to the chromatic card in the AC series. Table II summarizes the significant simple main interaction effects.

Response to color is constant in either order while the response to no color is influenced whether it precedes or is preceded by color. Results of the interactive effects of color and order suggest the possibility of an alternate TAT form to provide more reliable data: if a chromatic retest is presented the subject responds to a stimulus which is as novel as the first presentation. The results from the responsivity and emotional tone measures are similarly relevant. Females and males should be treated separately in clinical interpretation and research studies. Maximum personality information can be elicited from subjects when sets of achromatic and chromatic TAT cards are presented in an AC order. In addition, the influence of sex and order are similar to effects reported in parallel studies with the H-T-P (Bieliuskas and Heffron, 1960) and Mosaic (Horne and Bova, 1960). The utility of these conclusions is tempered by the implication that the scoring scales may not be adequate to measure affect and responsivity.

Card 6BM was most sensitive to the effects tested: its sensitivity is similar to that of the abbreviated sets. Cross-validation is needed to establish whether or not this card is representative of response to abbreviated sets, or if an order effect (the fourth card presented) stimulates fantasies like that of the overall set.

The results are pertinent to questions of color and affect and to the quantification of subjective data. Each of the scales was sensitive to the presence or absence of color in an individual fashion. Few positive results may indicate that color has no effect on fantasy productions, or that the effect was not measured. While the effect of color can be quantified by controlling variables, this does not imply that no effect occurs under other conditions. The fact that color interacted with order is supportive. Subjective reactions, reported as subject comments, strengthen the hypothesis: experience did differ with two versions of the stimulus.

It follows that measures of the effect of color are limited. Discrete categories are in fact spurious and artificial descriptions of the continuous experience of fantasy life. Our crude attempts to represent inner experience by fragmentation invite error

Table II—Summary of Significant Simple Main Effects of AB and AC Interactions

(A1 = color first, A2 = color second, B1 = color, B2 = no color
C1 = male, C2 = female)

Scale	AC card	AC effect	AB card	AB effect
Emotional Tone	6BM	A2C1 > A1C1*		
	Set	A2C1 > A2C2**		
Word Count	6BM	A2C1 > A1C1**	6BM	A2B2 > A1B1**
	6BM	A1C2 > A1C1**	6BM	A1B1 > A1B2*
	6BM	A2C2 > A1C1**	6BM	A2B2 > A2B1*
			Set	A2B2 > A1B2**
			Set	A1B1 > A1B2*
Q-Sort	7BM	A2C2 > A1C2*	6BM	A2B2 > A1B2**
	7BM	A2C2 > A2C1**	6BM	A1B1 > A1B2*
	7BM	A2C2 > A1C1**	6BM	A2B1 > A1B2*
Transcendence Index			6BM	A2B2 > A1B2**
			6BM	A1B1 > A1B2**
			6BM	A2B1 > A1B2*

* $p < .05$
** $p < .01$

of such magnitude that only infrequently are research results positive. The studies of color on the TAT all report a subtle effect of color which is not so general that it is identified by rating schemes but is significant enough to merit comment. Baughman's general conclusion with respect to color on the Rorschach appears to be applicable: the effect of color is not represented by present scoring criteria, but is effective in a conceptual and aesthetic fashion.

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Rorschach and TAT Responses of Negro, Mexican-American, and Anglo Psychiatric Patients

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Summary: The Rorschach and Thematic Apperception Projective Test responses of 75 Anglos, Negroes, and Mexican-American patients on the psychiatric unit of a Veterans Administration General Medical and Surgical Hospital were compared. The subjects were a random sample of non-psychotic male veterans whose ages, educational backgrounds and occupational levels were quite similar.

A number of statistically significant differences were found between the groups, with most distinct differences on the Rorschach appearing on the measures of hostility. The TAT pointed up differences between the Mexican-Americans and the other two groups in themes of family unit, and in their characterization, but more particularly of father-son and mother-son relationships. This TAT finding possibly demonstrates the persistence of Mexican-American cultural values regarding interpersonal relationships within the family. Results of this study suggest the utility of projective measures in the formulation of culture and personality theories.

The use of projective tests to measure culture-related personality differences has increased in recent years. The editor of the Primary Records in Culture and Personality series (Kaplan, 1961) has estimated that there have been as many as 150 studies in 75 societies. Only a very few of these, however, have dealt with psychiatric groups, and most have dealt with a single culture without presenting cross-cultural comparisons. One of the exceptions, carried out by Singer and Opler (1956), compared patterns of fantasy and motility of Irish-American and Italian-American schizophrenics. They found, among other things, that Rorschach differences existed which indicated greater imaginative behavior and motor control for their Irish-American group.

A review of the literature has revealed an absence of any similar comparative research with three of the major North American subcultures: Anglos[1], Negroes, and Mexican-Americans. The present study was designed to explore personality differences between members of these subcultures through the use of the Rorschach and Thematic Apperception Test projective techniques.

SUBJECTS

The subjects were a random sample of 75 non-psychotic psychiatric patients, 25 from each of the three subcultures. Diagnostically, the subgroups were nearly equal and each was comprised of approximately 60% anxiety reactions, 20% depressive reactions, 4% psychosomatic reactions, 6% passive aggressive personality disturbances, and 10% conversion reactions. The groups were also similar in the numbers of men with service connected disabilities in each. All subjects were patients at the Houston Veterans Administration Hospital and were between the ages of 25 and 55.

The ages, years of education and occupational levels were similar for the three groups. The Anglos, Mexican-Americans, and Negroes had mean ages of 37.2, 36.5 and 35.1 respectively. In the same order, educational means were 10.2, 7.8, and 9.6. Occupational levels were based on a 5-point rating scale, with 5 representing the lowest level. Using this system, the Anglo mean occupational level was 3.8, the Mexican-American mean was 4.2 and the Negro mean was 4.4. Differences between the groups on these background items were not statistically significant.

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[1] The term 'Anglo," is used to describe the white sample whose surnames are not Spanish and who are mainly of Anglo-Saxon and North European descent.

Although in this sample the groups tended to be similar in being from the lower occupational levels, they necessarily differed in social class and culture. Regardless of what occupational level they occupy, members of the Anglo group are part of the majority culture and clearly enjoy highest status. The Negro group differs primarily on the social class dimension; Negro behavior is governed to a large extent by rules of a caste system. At the present time in Texas, it is virtually impossible to match groups for socioeconomic status as the Negro is, by custom and law, forced to occupy a subservient social position. The Mexican-American group, in general, has a lower social status than the Anglo group, but their class position is neither as clearly nor as rigidly defined as is that of the Negro. They differ from the Anglo and Negro groups on the cultural dimension; that is, they have backgrounds which differ in terms of language, childrearing practices, and interpersonal values. The Mexican-Americans in the present study were alike in having Spanish as their first language, generally learning English at the time of first attending school. Some were second generation Texans and one man was able to trace his ancestry to six generations in what is now Texas. All 75 of the subjects were native-born, citizens of the United States, and were veterans of military service. These last features, of course, tend to minimize cultural distinctions that may exist.

PROCEDURE

The tests were given according to standard instructions by three psychologists representing the three subcultures under investigation. Each psychologist, however, tested subjects from all three subcultures. Subcultural identity of the examiner did not appear to influence the richness or productivity of test records.[2] The Rorschach records were scored following Klopfer's system. All of the major scoring categories were used and, in addition, records were scored for hostility. This scoring categorized content that contained some dangerous or hostile elements, such as "great horns," "jet plane," or "snapping turtle," as *Potential Hostility*. If the content was of actual hostility—e.g., "a war of two monsters," or "two women arguing"—the scoring was *Open Hostility*. Content of mutilation, destruction, or harm that had occurred, e.g., "a squashed insect," was scored *Victim Hostility*. In addition, all human and animal movement responses were scored for tension or hostility. If no hostility were present, such as "two girls dancing," the scoring was simply *Mild Movement*. If the movement were of effort, such as "two men trying to lift a heavy rock," the response was scored *Strained Movement*. The final movement category, *Hostile Movement*, was used if the content were of actual combat or hostility.

Six TAT cards were selected for their utility in sampling both basic assumptions about interpersonal relations and projected problems in several critical interpersonal areas. These were Cards 1, 2, 4, 6 BM, 7 BM, and 13 MF. A summary of the scoring categories and results appears in Table II. It will be noted that totals do not reach 25 in all cases. This is because some stories could not be categorized. Agreement on assignment to categories by two judges was found to range between 86 per cent and 100 per cent.

RESULTS

The results of the Rorschach scoring are given in Table I. While

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[2] The authors wish to express their appreciation to Nathan Murillo for his assistance in testing the subjects.

TABLE I—Rorschach Mean Scores for the Three Subcultures

Rorschach Variables	*Anglo*	*Mexican-American*	*Negro*	*Significant Differences*
Response Total (R)	18.91	18.16	16.36	
Location				
Whole (W)	9.16	7.08	7.32	A>M .05
White Space (S)	.44	.84	.20	
Large Area (D)	8.88	8.91	8.40	
Small Area (d)	.24	1.48	.40	
Determinants				
Form (F)	9.68	11.48	9.92	
Poor Form Level (—)	2.64	2.32	4.12	N>M .05
Human Movement (M)	1.80	1.00	1.08	A>N .01
Animal Movement (FM)	2.88	2.60	2.12	
Inanimate Movement (m)	1.20	.80	.52	
Transparency (k)	.08	.24	.16	
Vista (FK)	.12	.12	.04	
Texture (Fc)	.36	.24	.52	
Achromatic Color (C′)	.20	.68	.16	
Form-Color (FC)	1.64	.88	1.00	
Color-Form (CF)	.72	.52	.84	
Pure Color (C)	.00	.16	.24	
Content				
Popular (P)	4.16	3.36	2.48	A>N .02
Human (H)	1.80	1.36	1.32	
Human Detail (Hd)	.64	1.08	.44	M>A .05
Animal (A)	7.36	6.92	6.72	
Animal Detail (Ad)	.96	1.68	.48	M>N .05
Animal Object (Aobj)	1.28	1.00	.56	
Object (Obj)	1.08	1.52	1.36	
Plant (Pl)	1.24	.48	.76	
Geographic (Geo)	1.04	.92	1.08	
Anatomy (At)	1.48	.88	2.16	N>M .02
Sex (Sx)	.48	.52	.32	
X-ray	.16	.44	.28	
Explosion (Expl)	.40	.28	.16	
Cloud (Cl)	.20	.52	.24	
Potential Hostility	1.84	2.00	.96	Overall, .02; A>N .01; M>N .05
Open Hostility	.60	.36	.48	
Victim Hostility	1.48	.84	2.24	Overall, .05; N>M .05
Mild Movement	2.56	2.08	1.20	Overall, .01; A>N .01; M>N .01
Strained Movement	1.28	.88	1.16	
Hostile Movement	.60	.40	.60	
Combinations and Ratios	*(Number of Ss Above Median)*			
CF+C>FC	4	6	7	
Sum of C>2	17	8	12	Overall, 05; A>M .02
FC>2	14	6	7	Overall, .05; A>M .05; A>N .05
FM>M	14	18	16	
M>2	12	7	6	

means for the scores are presented, the statistical technique used throughout was X^2. Cutting points were located as near the median as possible. X^2 was computed for the three groups in 2X3 tables and differences significant at the .05 level or beyond, are indicated in Table I by the term "overall," and the obtained probability level. In addition, X^2 fourfold comparisons were made between subcultural pairs, i.e., Negroes versus Anglos, and the probability values obtained are indicated with the letters

M, N and A identifying the Mexican-American, Negro and Anglo groups, respectively.

A number of statistically significant differences occurred and it may be well to view each subcultural group separately. Taking the Negro group first, it may be seen that they were low on Potential Hostility, but comparatively high on Victim Hostility. They gave few Mild Movement responses and tended to be high on Anatomy and Poor-Form Level. They tended to be low on Human Movement, Form-Color and Populars.

The Mexican-American group was high on Potential Hostility and low on Victim Hostility. They gave few Anatomy responses, showed relatively high Form Level, and they gave a relatively low number of Color responses. In addition, they tended to be high on Form responses (F) and to give more detailed (d) responses, both Human and Animal.

The Anglos gave more Mild Movement responses, more Populars, a high number of Whole responses, and more often gave several Form-Color responses.

Differences between the three groups were most impressive on the hostility scoring measures and, in a sense, overall patterns may be seen as variations in handling hostility. In emphasizing the end product of hostility, the Negroes apparently show a feeling that they are victims, vulnerable, and surrounded by impending violence. The Mexican-American subjects evidence little of this feeling, but see much latent hostility in the world. These differences suggest that the neurotic Negro feels defeated, while his Mexican-American counterpart feels more secure, but yet, defensively on-guard. The other scoring tendencies of the groups may be seen as consistent with this idea in that the Mexican-American group does appear to be more concrete and constricted, and to handle conflict by formalizing and compulsively dealing with details or the particulars of life while the other groups deal more with the generalities. The Negroes appear to be more body-centered and to be more hysteriod in their emphasis on repression and low impulse control. The Anglos occupy a middle position in their handling of hostility, but show greatest internal tension together with more flexible control.

Comparison may be made with Rorschach results reported by Kardiner and Ovesey (1951) in their book on Negro personality, *The Mark of Oppression*. In his analysis of the Rorschachs collected for this study, Goldman found that the Negro subjects gave many responses of blood, mutilation, bent-over figures, dancing, and derogatory, silly figures. His analysis, however, did not include comparisons with other groups. Making this comparison with the present data, we find our three groups strikingly similar in producing content of the kind mentioned by Goldman. His statements about the Negro are supported and appear true enough, but the same statements could also be made about the Anglos and Mexican-Americans. The only difference approaching significance in this comparison is that Anglos more than twice as often as the other two groups stated that the figures on Card III are "savages", "cannibals", or "in black-face."

The TAT results are presented in Table II.

Utilizing themes of achievement on Card 1 as the measure of achievement concern, we found a tendency for the Mexican-American and Negro groups to show more achievement. The differences were not, however, statistically significant. A sub-category of some possible importance was that of blocked achievement: the boy wishes to become a great violinist and works hard, but he fails because he has no one to help him or his violin has broken. Although the groups did not differ significantly, these themes of frustration tended to appear most

Table—II Contingency Tables for TAT Scoring Categories

TAT Variables	*Anglo*	*Mexican-American*	*Negro*
Achievement Card I Themes			
Achievers	5	11	10
Non-Achievers	20	14	15
		$X^2=5.13$ df=2 $P<.10$ Non-significant	
Blocked Achievement	2	8	7
Fulfilled Achievement	3	3	3
Family Unity (Card 2)			
Unity	9	16	4
Non-Unity	16	9	19
		$X^2=11.01$ df=2 $P<.01$	
Attitude Toward Age-Similar Female Influence (Card 4)	*Anglo*	*Mexican-American*	*Negro*
Rejection	9	12	11
Acceptance	13	13	10
		$X^2=.58$ df=2 Non-significant	
Mother-Son Relationships (Card 6 BM)	*Anglo*	*Mexican-American*	*Negro*
Accepting Relationship with Mother	7	14	4
	8	5	10
		$X^2=6.42$ df =2 $P<.05$	
Father-Son Relationships (Card 7 BM)	*Anglo*	*Mexican-American*	*Negro*
Acceptance of Older Man	5	17	8
Rejection	9	4	19
		$X^2=8.19$ df=2 $P<.02$	
Attitudes Toward Sex and Aggression (Card 13 MF)	*Anglo*	*Mexican-American*	*Negro*
Sexual Guilt Present	9	8	4
Sexual Guilt Not Present	15	17	19
		$X^2=2.45$ df=2 Non-significant	
No Aggression or Sex	5	2	10
Aggressive or Sexual Theme Present	19	23	13
		$X^2=8.52$ df=2 $P<.02$	

often in Negro stories (7 times) and Mexican-American records (8 times) while appearing only twice in Anglo records.

Among the most clear-cut differences to emerge in the study are those on the "family unity" dimension as shown in Card 2 themes. The Mexican-American group has a more consistent view of the family as unified—"They are all working so they will have a good crop" or "The family is working to send the daughter to school so she can get a good education." The Negro subjects were lowest on this category, tending to give stories in which there was no interaction or in which trouble was being experienced: "That girl is trying to get away from them because they don't pay any attention to her."

Categorizing responses to Card 4 as either rejecting or accepting influence by the woman resulted in no significant differences between groups.

Responses to the Mother-Son (Card 6 BM) again show significant differences. For the Mexican-American, the scene is one of a son leaving his mother. Typically, they are both sad, the mother feels hurt, and this in turn hurts the son. Only a few see the boy as rejecting the mother or feeling deprived by the mother. The Negro group, on the other hand, strongly tended to see the mother as rejecting or to see the relationship as one of conflict. The Anglo group occupied an intermediate position.

Highly significant differences appeared on the Father-Son card. Negroes and Anglos are similar and quite different from the Mexican-Americans who were very consistent in giving stories similar to the following: "Well, to me it seems like a father giving a son some advice and, according to his face, he's taking it, thinking deeply about what the old gentleman is telling him, and the old man is very concerned about what he's telling to the young fellow." Anglos were more apt to see the pair as not father and son and, with the Negroes, to see them in disagreement, with the younger man rebelling.

The responses to Card 13 MF were difficult to place in the simple categories appropriate for statistical analysis because a wide variety of stories appeared for all three groups. The Anglo and Mexican-American groups tended to give more stories of sexual guilt than the Negroes, mainly because a significantly larger number of Negroes gave stories in which it was very obvious that they were denying the sexual or aggressive elements. For example, the subject, after a cautious pause, would say that "the man was getting up to go to work while his wife slept on."

Viewing the three groups on the TAT series as a whole, the outstanding finding was that the Mexican-American group differs so distinctly from the others in their conceptions of families. Their TAT stories fit the descriptions of Mexican interpersonal relations made by Diaz-Guerrero (1955), especially regarding what he states are the two fundamental propositions upon which Mexican family life is founded: "(1) the unquestioned and absolute supremacy of the father, and (2) the necessary and absolute self-sacrifice of the mother".

The family is less well represented in the thinking of the Anglos and Negroes. With regard to the latter, one finds few positive TAT themes. If outright discord is not present, the story is likely to be flat and without involvement. Their stories lead one to suppose that Negro family life is troubled and certainly not a source of support for the individual. Clearly, parental figures occupy a much more influential place in the cognitive structure of the Mexican-American group and with this it would seem there should be greater behavioral control. If images of one's parents are so persistently present and if the attitude toward them is one of respect, then one is not likely to violate social taboos. That this may be related to Jaco's (1960) finding that Mexican-Americans have lower rates of psychosis than whites or Negroes is an intriguing possibility. Perhaps it is in such measuring of the relative strengths of interpersonal identifications that projective tests can be most useful in the formulation of culture and personality theories.

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Developmental Experiments in Hypnosis[1]

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Summary: Two-hundred-forty children, including ten boys and girls at each year level from five through sixteen, were selected from the entire public school population of a small city for testing on the *Children's Hypnotic Susceptibility Scale*. For most of these children, testing was repeated yearly for the next two years. Reliability for the *Children's Scale* was quite satisfactory for individual prediction. There were absolutely no differences in the hypnotic susceptibility of boys and girls in this sample. Intelligence had only low positive correlations with susceptibility. The correlation of age with susceptibility, measured either cross-sectionally or longitudinally, is positive and significant, but small. Changes in individual performance over time are generally minimal, and hypnotic susceptibility may be considered a relatively stable component of personality structure.

Despite a growing body of excellent research on hypnosis, relatively little effort has been expended on studies seeking a developmental perspective on it. Considering the emphasis which dynamic descriptions of hypnotic behavior and current theory place on developmental variables, this is somewhat surprising.

The Interactive aspects of the subject (Hilgard, 1962; Hilgard and Hilgard, 1962), on the other hand, are so dramatic and interesting that they have captured the attention of most researchers. Also, the elusiveness of reliable information about hypnosis has been so marked that much more work is necessarily spent on validating or infirming myths about its nature and effects than on observing the development of those effects (Orne, 1959; Sutcliffe, 1961; etc.) The upshot has been a dearth of empirical studies on the hypnotic behavior of children.

Between 1887 and 1958 there have been about thirteen studies of hypnosis and related states in children, but they do not, either singly or together, give us clear information about the ontogenic development of hypnosis (Tromater, 1961). There are two developmental studies of particular importance in the literature prior to 1961, neither of which was first reported by its author. Liébault studied more than 1,000 persons of all ages, according to Bernheim's report (1887), and Messerschmidt did a normative study of child hypnosis under Hull, according to his report (1933). The latter is not clear in all details, failing to specify, for example, precisely how many children she tested or exactly what hypnotic procedures she used. What is clear is that, like Liébault, she tested a number of children who differed greatly in age and, like him, arrived at the same two general conclusions, namely:

(1) Children are, as a group, more susceptible to hypnosis than adults, and

(2) There seems to be a curvilinear relationship between age and susceptibility, such that children's susceptibil-

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[1] Much of the material contained in this paper was originally presented at the annual meetings of the American Psychological Association in Philadelphia, September, 1963. The paper was given as part of a symposium on "The New, 'Hard-nosed' Approach in Hypnosis," and was titled "Research experiments in hypnosis with children."

[2] I am particularly indebted to Mr. Norman Palley, Statistician, Los Angeles County Department of Mental Health, for re-analysis of the data of this study and preparation of most of its tabular material.

[3] Originally sponsored by the University of Illinois Research Board, these studies are now supported by the U. S. Public Health Service, under National Institute of Mental Health grants MH-08598 to the University of Southern California under the direction of Perry London, and M-1260 to the Fels Research Institute under the direction of Lester M. Sontag.

ity to hypnosis increases from age five on up 'til somewhere between eight and twelve or fourteen years, reaches a peak during the latter years, and declines somewhat in later adolescence.

These findings have been accepted universally, it seems, among both clinical and experimental hypnotists, and the studies to be reported below were originated largely to demonstrate formally and precisely the points on the developmental curve of age and hypnotic susceptibility.

The present paper reports the results of the first three years of an ongoing research project on the development of hypnotic susceptibility in children. Reports of preliminary results from this project have been presented by Tromater (1961) and by London (1962, 1963), with similar results reported in the related work of Moore and Lauer (1963). The studies divide naturally into two parts:

(1) The measurement of hypnotic susceptibility in children, and

(2) Studies of the correlates of children's susceptibility.

THE DEVELOPMENTAL MEASUREMENT OF HYPNOTIC SUSCEPTIBILITY

The major flaws in early studies of hypnotic susceptibility were a lack of careful definitions of what was meant by susceptibility or a lack of precise means of measuring it, or both. The *Stanford Scale of Hynotic Susceptibility* (Weitzenhoffer and Hilgard, 1959) solved this problem more efficiently than had any previous adult measure by defining susceptibility operationally as the number of overtly acquiescent responses which a subject gave to hypnotic suggestions. Acceptance of a suggestion was quite easy to assess objectively, and retest reliabilities were quite satisfactorily high, ranging from .83 to .96.

The Childrens Hypnotic Susceptibility Scale (London, 1963), on which the present studies are based, is a twenty-two item standard hypnotic induction procedure which is patterned as precisely as possible after the *Stanford Scales.* Part I of the *Children's Scale* consists of twelve items which parallel the contents of *Stanford Scales A* and *B,* while nine of the ten items of Part II of the *Children's Scale* are adapted from other *Stanford Scales* (Weitzenhoffer and Hilgard, 1962, 1963). Since the *Children's Scale* was designed to test children over a wide age range, from five through sixteen (at which age the *Stanford Scales'* sampling begins), somewhat different wordings were provided for younger and older children, but the same items are employed for all age groups. Hypnotic inductions are given to baby talk anyhow, so parallel forms of items for younger and older children did not require very great changes in wording. The entire scale can be administered in 45 to 60 minutes.

Subjects

The 21 subjects for the first pilot test of the *Children's Scale* were obtained by word of mouth solicitation. Most of them were the children of University faculty members, and most of the remainder were children of professional people in the community.

The sample was thus quite negatively skewed with respect to the distribution of socio-economic characteristics and intelligence in the population. Subsequent samples were randomly selected by age from lists of children attending local public schools, but the actual distribution of volunteer families has, nevertheless, retained considerable bias toward an overabundance of children from families of relatively high socio-economic status.

Sampling

On completion of pilot testing, a larger sample of children of appropriate ages was selected by random sampling of the census deck of the Urbana, Illinois, public schools. The total enrollment was 3,700, and selection was made in batches of 500 — 700 cards each, using the last digit of phone numbers as the random selection number and using one separate batch for all families without telephones.

When a child had been selected for inclusion by this means, a form letter was sent to his parents explaining the study to them and asking them to participate in it. A total of 14% of the families thus addressed responded favorably, but only about 9% of the total population of families of public school children was actually used in the study (U.S. Census, 1960). These included about 300 children from among almost 500 whose parents had made themselves available. At year levels where favorable responses yielded more than ten children, ten each of boys and girls were randomly selected from among the total subject pool to constitute a standardization sample of 240 for the *Children's Scale.* By the above method, we eventually discovered that we had solicited the entire population of the public school census deck, obviating the need for the entire random sampling procedure!

The sampling method used here involves, of course, a unique form of bias with respect to the characteristics of the group finally used in the study. The influence of volunteer bias on experimental outcome, especially in personality research, is well known (Bell, 1962; London & Rosenhan, 1964). But our sample contains a peculiarly biased volunteer bias, since the actual volunteers for our study were a set of parents (with a few exceptions, such as in the case of late adolescents), while the subjects of the study were children who had not themselves volunteered. The precise effect this had on our results is unknown. The net effect of this procedure, on the other hand, did not leave us with a sample remarkably different from many of the characteristics of the population of Urbana, from which it was drawn (Table I).

Procedure

Parents who responded favorably to the initial letter were telephoned and given some description of the project, including instructions about how to

TABLE I—Comparison of Selected Characteristics of the Population of Urbana With That of the Sample

Population	*Urbana*	*Sample*
Total Population	27,294	—
Number of Families	6,163	—
Number of Families with Children Under 18	3,200	180
Persons per Household	2.84	3.33
Percentage of Families without Own Household	1.0%	0.0%
Income		
Median Family Income	6,000	—
Percentage of Families with Income <3,000	15.6%	—
Percentage of Families with Income >10,000	18.8%	—
Median Income of Families with 2 Children Under 18	$6,416	—
Education		
Median Education of all Males 25 and Over (Education of Fathers)	2 Years College	BA or BS
Percentage of Males 25 and Over who are H. S. Graduates	70.0%	82.0%
Percentage of 14-17 year olds Still in School	90.0%	100.0%
Occupation		
Number of Occupied Males	6,333	269*
Professional—Managerial	50.0%	58.0%
Clerical, Sales, Craftsmen, Foremen, Operatives, Service Workers	44.5%	37.3%
Laborers including Farm	5.5%	5.6%

*Father's occupation was counted once for each child he contributed to the study.

prepare their children for the experiment. They themselves were always invited to watch the entire proceeding through a one-way vision screen, accompanied by a member of the research team, a procedure which yielded such satisfactory public relations that it has been continued in all subsequent experiments. It provides parents with reassurance that their children are not being endangered or mishandled, and it enables the research team to gain the benefit of the parents' comments on their children's behavior.

The test was initially administered and scored by one experimenter while the child's parents and another experimenter observed the proceedings through a one-way vision screen. One week later the scale was again administered to the child, but by an experimenter who was not acquainted with his earlier performance, while his parents were interviewed to get information about the family and about the child's behavior and personality characteristics.

The scale was to be administered again at one year intervals over a three year period, according to the original design of the study. At this time, (September, 1963), one-year retests have been completed with some 130 children, and two-year retests with about 30 children. Longitudinal retesting is still in progress.

Experimenters

Many different experimenters were used throughout the study to cancel the effects of individual differences in performance which may be associated with differences in hypnotist ability rather than susceptibility. Fourteen experimenters performed first-session administrations of the *Children's Scale*, eleven hypnotists administered second-session tests, and six people functioned as hypnotists for longitudinal retesting purposes (Table II).

Scoring

As indicated in an earlier report, three different scores were employed to measure hypnotic susceptibility on the *Children's Scale* (London, 1962):

TABLE II—Number of Subjects Tested by Each Hypnotist in Session 1, 2, and Longitudinal Retest

Hypnotist	1st Sess. (N=291) Ss	2nd Sess. (N=216) Ss	Long. Retest (N=178) Ss
A	1	—	—
B	4	—	—
C	74	34	—
D	11	14	—
E	2	—	33
F	7	4	27
G	21	1	—
H	25	24	66
I	18	36	—
J	26	11	22
K	44	38	2
L	2	—	—
M	1	15	—
N	11	15	28
O	44	24	—

Overt Behavior (OB), like scores on the *Stanford Scales,* reflects the extent to which a child's response on an item overtly complied with the intent of the hypnotist's suggestion. Item scores of zero or one indicate failure, meaning either that a child responded negatively, failed to respond, or made only an inadequate gesture in the direction of accepting the suggestion. Scores of two or three indicate passing, meaning that the child responded adequately (2 points) or enthusiastically (3 points) to the suggestion.

Subjective Involvement (SI) scores, originally devised to permit distinctions between true hypnotic compliance and apparent role-playing, are not used on other scales of hypnotic susceptibility.[4] When a child obtained a passing score on an item with respect to *OB,* the observer assigned a letter score A, B, or C, (later coded 1, 2, or 3), to represent his impression that the child was A) "faking," i.e. role-playing, B) "partially involved," or C) "deeply involved" in the item.

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[4] Barber & Calverley (1963) use the same term, *Subjective Involvement*, on their suggestibility scale, as was earlier used in connection with children's susceptibility (London, 1962), but they do not use it to mean the same thing. In their report, the term refers to the subject's *own* statements about what he "actually felt" and which items he actively resisted.

For both the *Overt Behavior and Subjective Involvement* dimensions, a child's score for any part of the test is the sum of his item scores on that part for that dimension, and scores for the full scale are the sum of scores for Parts I and II.

A third scoring dimension provided a weighted combination of *OB* and *SI*. This *Total* score (*T*) was obtained by multiplying *OB* and *SI* scores for each item, then summing the products. Since *OB* scores on some items could be zero, these items were automatically cancelled in the calculation of the *Total* score; this procedure was adopted in order to weight *OB* more heavily than *SI* in the total assessment of susceptibility, since the extent to which one responds sincerely to a hypnotic suggestion seems generally irrelevant if he cannot accept the suggestion at the simplest level of response in the first place. The *Total* score was designed to approximate the impressions a hypnotist would get of a subject under clinical conditions, where he would make simultaneous judgments of both overt behavior and apparent subjective involvement.

Reliability. The results obtained by each of the scoring dimensions appear highly reliable, as measured both by the simultaneous observations of independent judges and the retest performances of children after one week. Whatever the components of susceptibility, as indicated by this test, they are apparently quite stable (Table III). This is generally consistent with the findings of Weitzenhoffer and Hilgard (1959) and with my own pilot results (London, 1962).

Interscorer reliability was taken as the correlation between scores assigned by the hypnotist and by the observer (through one-way vision screen) in the first administration of the Scale. These ranged from .86 for Part I to .94 for Full Scale, and among scoring dimensions, from .88 for *SI* to .97 for *OB*.

Intersession (test-retest) reliability was taken as the correlation between first session hypnotist scores and those assigned by the second session hypnotist. Since the scale was never administered by the same hypnotist on both occasions, these estimates of its reliability are artificially lowered to an unknown degree by the differences between hypnotist effects.

For this same sample, correlations between *OB* and *SI* scoring dimensions were also calculated. These were, for first-first-session hypnotist, .89; for first-session observer, .86; and for second-session hypnotist, .82, suggesting that the two scoring dimensions are actually both measuring very similar aspects of hypnotic susceptibility.

Factors in Susceptibility. The similarity of the results obtained by different scoring methods is further evident in the outcome of a factor analysis performed on the scores of all 240 children in the standardization group. The scale was factor analyzed separately for each scoring system, and the factors rotated by Kaiser's Varimax method. Eight factors were extracted

TABLE III—Interscorer and Intersession Reliability Scores for Part and Full Scale Susceptibility Scores

	Interscorer			Intersession		
Test	r	r*	N	r	r*	N
Part I	.86	.92	50	.65	.77	48
Part II	.87	.93	51	.71	.84	46
Full Scale				(N=50)		
Overt Behavior	.97			.81		
Subjective Involvement	.88			.75		
Total	.94			.84		

r* Predicted r for Part I or Part II expended to 22 items (full scale length). This estimation was made by means of the Spearman-Brown formula.

which account for virtually all the reliable variance of the scale. The factors are substantially the same by all three scoring methods and are quite similar to the groupings of Hilgard, Weitzenhoffer, Landes, and Moore (1961). Two factors, however, account for more than half the variance of the entire test: Challenge Items and Positive Hallucinations (Table IV).

CORRELATES OF CHILDREN'S SUSCEPTIBILITY

There are many dimensions of development which might be interesting to compare with that of susceptibility, and studies of its relationships to different learning, perceptual, social and dramatic skills are now in progress. Three of the most elementary concerns in this connection are the relationships of susceptibility to age itself, to sex, and to intelligence, each of which categorically embodies a large number of individual and group differences. The following discussion is limited to a report of findings on these topics.

Sex and Susceptibility

There are no differences in the hypnotic susceptibility of boys and girls, regardless of the scoring system used or the part of the Scale under consideration (Table V).

Intelligence and Susceptibility

Estimates of the relationship of intelligence and susceptibility were made from two independently selected subsamples, one consisting of 42 children taken from the same population as was our standardization group and the other of 54 children participating in the Fels Institute Longitudinal Study. Age ranges of the Urbana group were 8-12 and of the Fels group 6-12; IQ scores were extrapolated from scores on the Vocabulary subtest of the *Wechsler Intelligence Scale for Children* (Wechsler, 1949) in the Urbana group, but complete *WISC* scores were available for children in the Fels group. As is evident from Table V, the relationship of intelligence and hypnotic susceptibility is a positive but very modest one. It tends

TABLE IV—Factors in Children's Hypnotic Susceptibility

Factor		*Per Cent Variance* Overt Behavior	Subjective Involvement	Total
I.	Challenge Items	24%	22%	25%
II.	Positive Hallucinations	19%	32%	27%
III.	Amnesia	9%	13%	8%
IV.	Negative (analgesic) Hall.	10%	(4%)?	8%
V.	Hands	9%	12%	10%
VI.	Rapport—Eye Closure	9%	7%	7%
	Postural Sway	—	5%	6%
VII.	Posthypnotic Suggestion	9%	—	9%
VIII.	Alice in Wonderland	10%	—	—
	Anesthesia	—	6%	—

TABLE V—Means and Standard Deviations of All Scores By Sex Group

Type of Score	Boys (N=120) M	SD	Girls (N=120) M	SD
Part I				
Overt Behavior	24.06	8.55	24.12	8.61
Subjective Involvement	24.65	7.91	24.76	7.66
Total Score	59.33	30.32	59.70	29.98
Part II				
Overt Behavior	19.41	7.71	19.32	7.53
Subjective Involvement	19.57	7.10	19.19	6.90
Total Score	45.43	26.82	44.32	25.79
Full Scale				
Overt Behavior	43.47	15.20	43.43	14.88
Subjective Involvement	42.22	14.28	43.95	13.69
Total Score	104.75	54.47	104.0[illegible]	52.43

to be slightly overestimated on the Urbana sample for *SI* and *Total* susceptibility scores, which is apparently a result of the fact that *SI* scores depend almost entirely on *verbal* responses, as do IQ scores which are extrapolated from the *Vocabulary* subtest alone.

TABLE VI—Correlations Between I.Q. and Full Scale Susceptibility Scores

	Sample 1[a] (N=42)	Sample 2[b] (N=54)
O.B.	.24	.31*
S.I.	.47**	.20
Total	.43***	.25

* P <.05

**P <.01

[a] Ages 8-12, WISC Vocabulary I.Q. 116 (SD-17).

[b] Ages 6-12, WISC Full Scale I.Q. 110 (SD-19).

Age and Susceptibility

Cross-sectional study. Comparisons of mean *Children's Scale* performances at different ages demonstrate support for the findings of earlier studies that there is some lawful relationship between age and susceptibility, but the precise shape of the curve differs somewhat depending upon the measure of susceptibility used and the part of the *Scale* under consideration. Table VII shows the mean scores for the standardization group in two-year intervals, while Figures 1, 2, and 3 provide graphic illustrations of the same material.

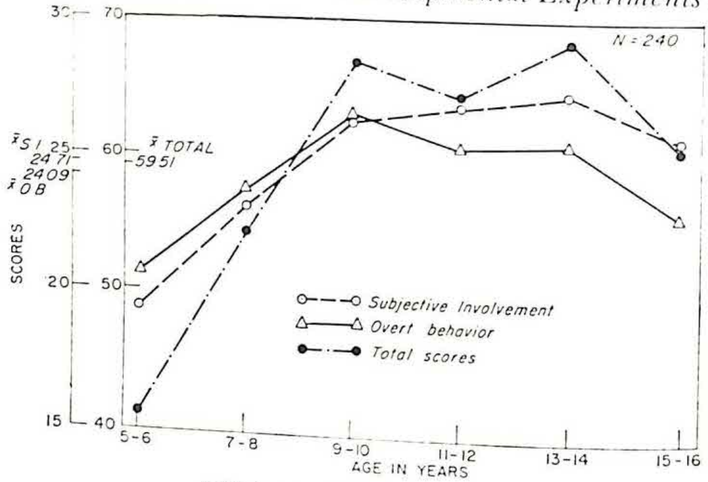
It must be noted, however, that though there is some relationship between age and susceptibility, the curve is a rather shallow one. Mean scores do not differ strikingly from one age cluster to another, and the variability of performance among different children at each level is very large. The extent of susceptibility or the lack of it among different children within a single age group is more impressive than are changes across ages.

Table VIII presents the correlations of age and susceptibility for each scoring method on the *Full Scale*. Only in the case of *OB* scores does the curvilinear correlation (eta = .32) significantly exceed the linear one (r = .15), and in all cases, the correlation with age accounts only for a singularly small proportion of the variance of the *Scale*.

Longitudinal Study. A large proportion of families who agreed to participate in the study in the first

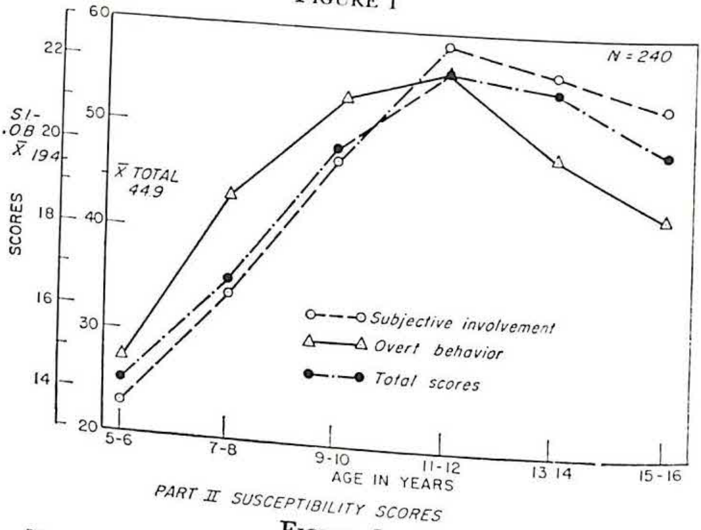
TABLE VII—Means and Standard Deviations of Scores by Age Groups

Type of Score	5-6 M (SD)	7-8 M (SD)	9-10 M (SD)	11-12 M (SD)	13-14 M (SD)	15-16 M (SD)
Part I						
Overt Behavior	20.7 (8.0)	23.7 (7.8)	26.4 (9.5)	25.4 (7.8)	25.5 (7.7)	22.9 (9.5)
Subjective Involvement	19.3 (7.2)	23.2 (7.4)	26.3 (7.9)	26.8 (7.0)	27.2 (6.8)	25.5 (7.8)
Total Score	41.0 (26.5)	54.2 (28.0)	66.5 (31.1)	67.4 (27.5)	68.1 (26.9)	60.9 (32.5)
Part II						
Overt Behavior	14.8 (7.2)	18.9 (6.6)	21.2 (6.8)	22.0 (6.6)	20.6 (8.2)	18.7 (8.4)
Subjective Involvement	13.7 (5.4)	16.5 (6.0)	19.9 (6.7)	22.7 (5.9)	22.1 (6.3)	21.5 (7.1)
Total Score	24.6 (20.6)	36.1 (21.7)	48.3 (24.7)	56.8 (23.1)	54.5 (25.8)	49.0 (27.5)
Full Scale						
Overt Behavior	35.5 (13.4)	42.6 (13.0)	47.6 (15.3)	47.3 (13.5)	46.2 (14.6)	41.6 (17.2)
Subjective Involvement	33.0 (12.1)	39.7 (12.3)	46.1 (13.8)	49.4 (11.9)	49.3 (12.2)	47.0 (14.2)
Total Score	65.6 (44.6)	90.4 (45.9)	114.8 (52.7)	123.1 (47.5)	122.6 (49.1)	109.9 (57.5)



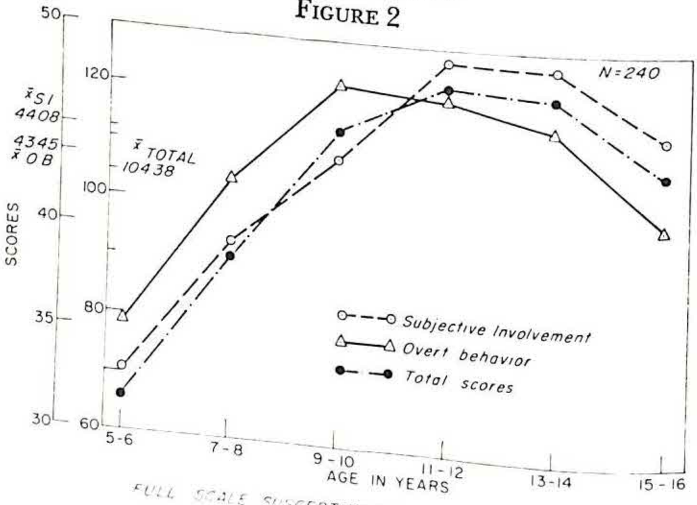
PART I SUSCEPTIBILITY SCORES

FIGURE 1



PART II SUSCEPTIBILITY SCORES

FIGURE 2



FULL SCALE SUSCEPTIBILITY SCORES

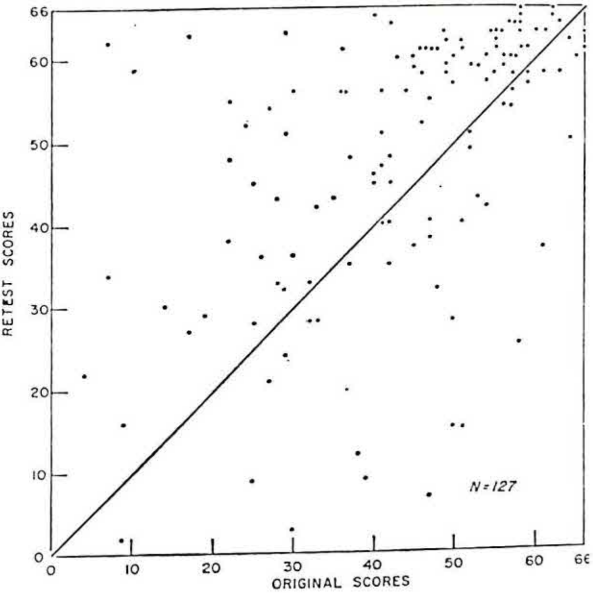
FIGURE 3

TABLE VIII—Product Moment and Curvilinear Correlations of Full Scale Susceptibility Scores With Age

Type of Score	*r*	n	(n-*r*)
Overt Behavior	.15*	.32**	.17*
Subjective Involvement	.36**	.44**	.07
Total Score	.31**	.41**	.10

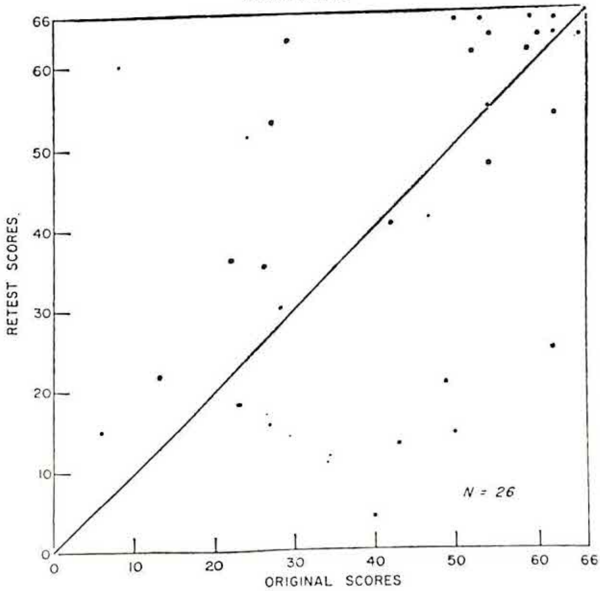
*p— $\leq .05$
**p— $\leq .01$

place were agreeable to the idea of having the susceptibility of their children retested after intervals of one or more years. The results of longitudinal retesting, which at this time has been completed on 127 children for a two-year interval, confirms the general impression of the cross-sectional study



OVERT BEHAVIOR ONE YEAR LONGITUDINAL RETEST

FIGURE 4



OVERT BEHAVIOR 2nd YEAR LONGITUDINAL RETEST

FIGURE 5

that there are some changes in susceptibility as a function of time. Figures 4 and 5 present scatter plots of score changes (Full Scale Total Scores) over one- and two-year intervals respectively. Scores which remained constant over time fall on the diagonal line, changes upward are represented as points above it on the graph, and changes downward are plotted as points below the line. The general direction of changes over time is upward, as indicated both by Figures 4 and 5 and by the average difference scores for two-year age groupings on Figure 6, but the actual size of the differences tends to be very small and the variability among children seems to depend less upon age than upon other apparently more subtle variables operating across all age groups.

In general, it seems clear that changes in susceptibility with age are less important than individual differences at any time. Further evidence to this effect comes from the fact that average score changes after one year (Figure 6) are not noticeably different than the average changes among the same children after one week (Table IX). Considering the high reliability of the scale, and the similarity in administration procedures after a week and after a year, it seems reasonable to conclude that much of what looks like longitudinal differences is actually measurement error, implying that the true changes over time are even smaller than they appear here!

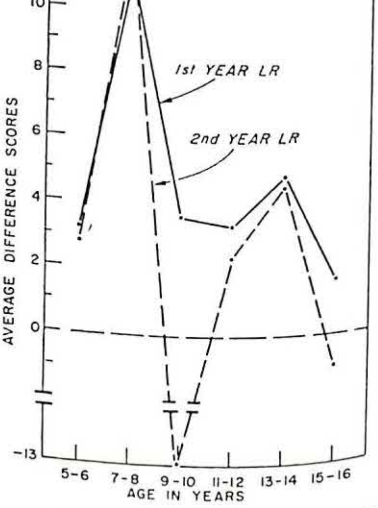
TABLE IX—Change in Full Scale Susceptibility Scores by Age Group From First to Second Week

Age Group	Mean Change	Mean Absolute Change	N
5	— 2.18	25.27	11
6	9.44	16.78	9
7	— 6.58	34.75	12
8	14.40	19.60	10
9	— 6.90	38.10	10
10	6.44	26.67	9
11	11.42	36.58	12
12	— .73	27.45	11
13	—12.44	16.67	9
14	9.71	25.14	7
15	— 1.14	18.29	7
16	0.00	18.80	10
All Ages	4.20	26.03	117

DISCUSSION

The results reported here, when taken together, suggest that hypnotic susceptibility may be the same kind of developmental phenomenon that intelligence appears to be. Some people are smarter than others, it seems, and they start that way and stay that way, although many influences affect the indices of measurement, and the mode of expression varies greatly over time. The idea that susceptibility is a function of situation seems at this point to be thoroughly untenable, however much it can be manipulated up or down by experimenters. Though it changes somewhat with age, the changes are shallow, and at any age, the differences apparent in the susceptibility of different children are generally reliable ones. Sex of subject apparently has no bearing on susceptibility, and the relationship of I.Q. to it is not very marked.

We are looking for persistent variables that correlate with susceptibility,



MEAN LONGITUDINAL DIFFERENCE SCORES

FIGURE 6

and expect to find some in patterns of interpersonal relations, of child rearing, and of role-playing. But we do not expect many such relationships and not very big ones in any case, because as the artifacts, contaminators and measurement errors are gradually identified, teased out, and otherwise erased, the phenomena of hypnotic susceptibility will apparently emerge more and more clearly not only as stable, but perhaps temperamental, structural components of human personality.

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Rorschach Indices of Ego Processes

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Summary: Work with psychotic children has led to an increasing need for more refined description of the various aspects of ego functioning which are involved in the coping processes. The task of the Rorschach can be described as that of responding to, integrating and interpreting a sample of outer reality. The subject's resolution of this task is determined by the particular interaction of the outer reality impinging upon the specific economy of his inner needs and the structure of his psychic organization. This paper attempts to elaborate and refine specific cues derived from how the subject copes with the task, such as reaction time and its relation to form level, content, use of determinants, etc. Inferences are then drawn as to the specific implications for ego functioning. The protocol of a schizophrenic adolescent is then analyzed according to this system of cues which are schematized in individual tables.

At Reiss-Davis as part of an ongoing research project dealing with childhood psychosis the authors have been working with the Rorschach among other instruments in an attempt to formulate more systematically the cues which are being used in the evaluation of such cases. It has become increasingly necessary to refine the interpretation of psychological instruments so that these differentiate not only the psychotic, non-psychotic and the borderline psychotic patients, but also so that they describe within these groups the variations of ego functioning which characterize different kinds of patients. The wide range of interest in this problem is represented in the vast amount of literature dealing with schizophrenia and its treatment which has appeared in the last ten to fifteen years. As the above work proceeded it became evident that the task was not one of formulating cues in relation to schizophrenia as such, but rather the formulation of cues to evaluate ego process in general.

All tests provide an opportunity for observing ego processes particularly around the individual's attempt to cope with the task. Some types of tasks more than other permit refined observation of the nature of the specific circumstances under which the individual is able to cope successfully and those in which he is unsuccessful as well as the manner in which he proceeds. The term ego and ego processes are used here in a general way and refer to those ego functions that are involved in the coping processes (Ekstein and Wallerstein, 1954), that is, the capacity of the individual to fulfill a task. This capacity has many aspects. In this paper only those aspects of ego functioning are being considered which can more readily be inferred from the subject's responses to the Rorschach. For the Rorschach the specific task assigned can be defined as that of responding, integrating, and interpreting a sample of outer reality. We assume that the manner in which the subject deals with this sample is determined by the interaction of the outer reality impinging upon him, the economy of his inner needs, and the structure of his psychic organization. The blots themselves may be considered as representative of external reality and because of the highly unstructured nature of the stimulus provide maximum opportunity for the projection of the inner needs and fantasies. His response is the product of the fusion of his perception of this outer reality with his inner needs and fantasies. The current state of the personality is a result of psychic as well as cultural determinants and will determine the manner of selecting out and of experiencing particular parts of this reality as represented by the blot. It is the interaction of these outer and inner stimuli which determine the response that the individual gives to the card. These responses then serve as the basis for inferences concerning the nature of the individual's ego processes. Thus one of the crucial factors is the evaluation of the manner in which the individual copes with the outer stimulus as contrasted to the coping with the inner stimulus. Hartmann (1953) has suggested such a concept when he states, "Actually, as mental phenomena are no less 'real' than the outer world (though we often refer to the latter only in speaking of 'reality'), it might prove useful to include testing of the within besides testing of the without. We could say that with the neurotic testing of inner, with the psychotic testing of outer reality is interfered with. However, a higher complexity is introduced by the fact, among others, that the two aspects of reality testing often interact." The application of such a differentiation of reality testing to the Rorschach offers the opportunity to refine inferences concerning the operation of ego process.

This presentation is an attempt to examine, refine, and expand current principles of interpretation of the Rorschach as they relate to ego processes. The suggestions offered are representative of a technique rather than a total or complete method. The familiar and well-used systems of Rorschach scoring and evaluation are the basis of the suggestions. In the customary systems, the effectiveness of the reality testing function of the ego is inferred from form evaluation, This aspect of evaluation of ego functioning has been well described previously and will not be dealt with by itself but rather as it provides a basis for a more detailed consideration. In addition to reality testing, the degree to which the subject invests his interest in intellectual control over his response is also inferred from form. The degree to which the individual's effort at intellectual control is successful can be determined from examination of the combination of intellectual control with adequacy of form. Many subjects indicate a strong wish or need to exert intellectual control as evidenced by a high number of responses with form priority but fail to give sufficient attention to the adequacy of form. In contrast many individuals manifest less interest in intellectual control but give sufficient attention to the adequacy of form so that the intellectual control achieved is far more efficient. Table I suggests a schema for evaluating this interrelationship between the use of form and its appropriateness.

A second indicator of the degree to which the ego can cope effectively can be derived from the inter-relationship between form level and reaction time. Reaction time represents the readiness of the ego process to attempt to cope with the stimulus. Form level indicates the ability of the ego process to make appropriate perceptual judgment about it. Increased reaction time reflects the diminution of such readiness and implies a cautiousness about the coping process which is indicative of anxiety. This anxiety may be in the service of the coping process and simultaneously may also interfere with the coping process. This anxiety can be considered a signal to be cautious and thereby creates a delay in responding so that the individual can search for a means of coping with the task. This use of anxiety can thus be interpreted as "signal anxiety" (Fenichel, 1945). Where the delay provides time for the individual to mobilize some psychic means for coping effectively with the task, we see the results of successful signal anxiety. Such a result can be interpreted as the adaptive use of anxiety. Where the delay is followed by ineffective coping with the task such as in a response with a minus form level, there is unsuccessful signal anxiety and a breakdown in the coping process which is indicative of impairment of both adaptive and defensive functions. Thus, the inter-relationship of the

TABLE I—Emphasis on Intellectual Control

1. a. F is main determinant	1. a. Form level is +	1. The use of form as primary suggests that interest in intellectual control and the desire to test reality is high. Form level indicates the degree to which this interest can be effectively implemented. Thus, successful use of F in this category indicates either the absence of disturbing anxiety or the presence of successful defense against anxiety. The less adequate the form, the more the conflict impairs the implementation of the wish to achieve appropriate control.
b. F is main determinant	b. Form level is 0	
c. F is main determinant	c. Form level is —	
2. a. F is secondary to another determinant	2. a. Form level is +	2. Where the form is secondary, the wish for control and the desire to test reality is only moderate and on a less mature level. This may represent the capacity for spontaneity or a lowered level of control because of conflict. The successful use of F in this category indicates either the absence of disturbing anxiety or the presen of successful defense against anxiety. The less adequate the form, the more the conflict impairs the implementation of the wish to achieve appropriate control.
b. F is secondary to another determinant	b. Form level is 0	
c. F is secondary to another determinant	c. Form level is —	
3. a. F is absent from response		3. Where F is absent, there is no evidence of interest in intellectual control or in testing reality.

objective measures of form level and reaction time can be used to infer the interplay of the adaptive and defensive function. Table II suggests a schema for use of this concept.

A third aspect of ego functionin

TABLE II—Form Level and Reaction Time

1. No time delay	1. Accurate form	1. Indicative of a smooth operation of the ego process which is evidence a) of the absence o disturbing anxiety or b) the presence of a effective defense against anxiety.
2. Time delay	2. Accurate form	2. Indicative of the subject experiencing som anxiety which causes a delay in respondi and thereby provides time for the individu to mobilize some psychic means by which h can cope effectively with the stimulus.
3. Time delay	3. Rejection	3. Indicative of the subject experiencing anx to the degree that he cannot mobilize a psychic means of coping effectively with the task. Thus the signal anxiety serves the function of warding off a break-through of impulses or ineffective responses. However, the limitation of the success is seen in the primitive or gross defensive maneuver necessary which actually results in a failure to act.
4. Time delay	4. Inaccurate form	4. Indicative of the subject experiencing anxiety to such a degree that time is not sufficient to prevent an impulsive or ineffective response. The result is the poor form response which thus indicates the failure of the signal anxiety to function successfully.
5. No time delay	5. Inaccurate form	5. Indicative of the subject experiencing either a) inability to adapt to coping or b) lack of attempt to adapt to the coping process. Thus, an impulsive, ineffective response occurs which indicates the absence of signal anxiety.

which can be evaluated is the effectiveness with which the individual can respond to a variety of stimuli in the environment. This effectiveness can be inferred from the success with which he integrates appropriate perceptual judgments and a variety of stimuli in the Rorschach (specifically, location category, determinants, and content categories) as evidenced in the relationship of form level and stimulus acceptance. The varying levels of form serve as a basis for estimating the consistency of good or poor ego functioning over the range of stimuli and differentiating whether specific stimuli are a greater source of disturbance than others. This type of evaluation provides information which differentiates individuals who have greater or lesser breadth in their response to stimuli in the environment in terms of the success of their response. Such evaluation differentiates not only the individual with a limited range of responsiveness from those with greater responsiveness but also whether the responsiveness is in the service of effective functioning. For a successful adaptation it may well be that in the case of some individuals it would serve them better for example to limit their responsiveness to the areas which they can master effectively rather than attempting to cope with the greater breadth of stimuli. The ability to use stimuli freely and well is indicative of the readiness with which the individual can adapt to and integrate a wide range of external stimuli and hence utilize the full potential of his inner resources and integrate it with his inner reality. This relationship provides thus an opportunity to observe the individual's mode of coping in terms of the range from the constricted personality where the limitation is necessary to maintain effective functioning, through a personality structure with optimal responsiveness, to a personality structure that reacts to a very wide range of stimuli. Where the latter is the case and the form is not maintained at adequate level there is present the pathologically dilated personality unable to limit reactivity even in the service of more effective functioning. The schema suggested for this analysis appears in Table III.

TABLE III—Stimulus Acceptance and Form Level

1. Optimal use of appropriate variety of stimuli	1. a. Good form of all determinants	1. a. The use of good form in relation to the use of stimuli provides information about the capacity for differentiated reaction to a variety of stimuli with good reality testing. Thus the responses can be classified in terms of the variety of stimuli used, ranging from an excessive responsiveness to stimuli to an appropriate responsiveness to stimuli to an inadequate responsiveness. Normally it is expected that appropriate ego functioning will be selective. Thus the excessive use of a variety of stimuli represents a failure of normal selectivity and indicates an ego process which can be flooded from without.
	b. Poor form of a few determinants	b. The use of poor form in relation to the use of stimuli provides information about the area in which the ego process can interact effectively and ineffectively with the environment. Comparison of form level with each of the variety of stimuli used provides a basis for differentiating which aspects of the environment the ego can cope with. By contrast those areas in which form level is poor indicate a failure of ego functioning and thereby provide a clue to the sources of conflict.

	c. Poor form of all determinants	c. The use of poor form in relation to the total variety of stimuli responded to is indicative of a more pervasive impairment of functioning and ineffectiveness of the coping processes. However, insofar as the capacity to respond to an optimal variety of stimuli remains unimpaired, we see evidence of a characterlogical disturbance to which an adjustment and an adaptation has been made rather than of an active conflict which is expressed in neurotic symptomatology.
2. Excessive variety of stimuli used	2. a. Good form of all stimuli	2. a. The excessive use of a variety of stimuli represents a failure of normal selectivity and indicates an ego process which can be flooded from without. Where the form level is good this difficulty is present but without impairment of reality testing.
	b. Poor form of a few stimuli	b. The use of poor form in relation to a few of the stimuli used in a record in which there is an excessive variety of stimuli responded to is indicative of ego failure with respect to both the inability to be selective as well as a beginning impairment in reality testing.
	c. Poor form of all stimuli	c. The use of poor form in relation to all stimuli in a record with an excessive variety of stimuli used is indicative of a severe ego impairment manifested by an individual who is bombarded from stimuli from within and without and is under pressure to respond to both.
3. Limited variety of stimuli	3. a. Good form of all stimuli	3. a. Where the form level remains intact we have a constricted individual who is able to function without impairment so long as he can limit and select out those aspects of the environment to which he can safely respond.
	b. Poor form of a few stimuli	b. Where the form level begins to become impaired we see evidence of increasing intrusion of the conflict and failure of the coping process.
	c. Poor form of all stimuli	c. Indicative of the failure of the defensive maneuver of selectivity to screen out the conflict-arousing stimuli with the result that impairment of the reality testing appears.
4. Excessive use of any particular stimuli	4. a. Good form of all stimuli	4. The excessive use of a particular stimulus reflects an over-investment in some aspect of the environment arising out of an inner need. This thus creates an inbalance in the distribution of ego investment in different aspects of the environment. Where the form level is maintained this inbalance has not as yet created an impairment of reality testing although we might predict that the excessive investment of energy in any one aspect of the environment might potentially lead to inadequate attention to other aspects of reality. Inasmuch as the form level is impaired we see evidence of such failure.

A fourth way of evaluating ego functioning is to examine the individual's ability to adapt effectively and to integrate a wide range of stimuli in relation to reaction time. This relationship provides qualitatively finer cues to help clarify the functioning of the ego mode of coping with the specific stimuli categories under consideration. For example when there is an omission of the expected stimuli without an initial time delay it is more likely that a character problem is present than whether the omission occurs in conjunction with a significant time delay which is suggestive of the subject's experiencing anxiety over the task. Table IV represents the schema for evaluating the relationship.

So far we have been evaluating the manner in which the individual copes with the task rather than examining the content of his responses. A fifth way of evaluating ego process is to examine the content of the responses for further information about the manner in which the individual copes with the task as noted from the way in which he reflects about and gives meaning to his reality. Severe disturbances in content are considered indicative of a primary thought disorder which may or may not be accompanied by impairment of the perceptual functions. The inter-relationship of disturbance in perceptual functioning, as reflected in form level, and disturbances in cognitive functioning, as reflected in a variety of conceptual disturbances, appears related to a number of diagnostic problems. For example, there is the problem of the "burnt out" schizophrenic record. This is the empty barren Rorschach, in which there is poor reality testing as evidenced by minus form level without overt indications of a breakthrough of primary process functioning, as is found on more florid schizophrenic records which contain a variety of disturbed responses such as confabulations, contaminations, etc. In the barren Rorschach we have evidence of a breakdown in reality testing with reference to external reality, which is not, however, accompanied by overt manifestations of regression to more archaic modes of thinking. In contrast, there is the record where the form level may be maintained despite the breakthrough of conceptual disturbances which are directly related to fluctuations between a primary and secondary process thinking. In this instance we are confronted with what may appear to be a normal, meaning a pseudo-normal, adjustment to an external reality with, however, a complete breakdown in the area of reality testing of the inner fantasy life.

TABLE IV—Stimulus Acceptance and Time

1. Optimal use of the appropriate variety of stimuli	1. No initial time delay	1. Indicative of an ego process capable of interacting with appropriate aspects of the environment which is interpreted as: a. Absence of distributing anxiety or b. Absence of an inhibiting defense against anxiety
2. Optimal use of the appropriate variety of stimuli	2. Initial time delay	2. Indicative of the subjects experiencing some anxiety which causes a delay in responding. By means of this delay the individual is able to master the anxiety sufficiently to cope with the task in terms of responding to the variety of stimuli optimally expected of him.
3. Omission of the appropriate variety of stimuli	3. No initial time delay	3. Indicative of an ego process which avoids the experiencing of anxiety through psychic mechanisms which constrict and limit the ego's responsiveness to an appropriate variety of stimuli.
4. Omission of the appropriate variety of stimuli	4. Initial time delay	4. Indicative of an ego process which experiences anxiety despite the attempt to avoid the anxiety through limiting and constricting the responses to less conflict-arousing stimuli.

An illustration of such a response is present in the accompanying record where the subject responds to Card I with a flying doll without any suggestion that she recognizes the fantasy nature or unreality of such an object. The central figure is used appropriately for the doll, the side details are used for the wings. Thus form remains appropriate but there is a failure to test the fantasy for reality.

The area of primary process is one in which extensive work has been done and a variety of systems of classification have been developed. The reader is referred specifically to the detailed work of Holt and Havel (1960) who have further expanded and refined the work of Rapaport (1946) and Schafer (1954) on disturbances in concept formation in order to distinguish more discriminatingly between primary and secondary process functioning.

Holtzman *et al.* (1961) have attempted to compile some of the more typical categories of content disturbance. These are listed below in order to help illustrate the kind of responses we are including under inappropriate content. They are very roughly ranked according to the degree of pathology that they reflect but they must not be considered rigidly ordered nor exhaustively described.

Fabulation (FB)
Fabulized Combination
Queer Response
Incoherence
Autistic Logic
Contamination
Self-reference
Deterioration Color
Absurd Response

Table V presents a schema for evaluating these disturbances. The presence or absence of a time delay is related to the effectiveness of such anxiety in helping the individual to cope with pressures from primary process. Thus, the presence or absence of time delay permits inferences about the degree to which primary process overrules secondary process. For ex-

TABLE V—Content and Reaction Time

1. No time delay	1. Appropriate content	1. Indicative of a smooth operation of the ego process which is evidence a. of the absence of disturbing anxiety or b. the presence of an effective defense against anxiety.
2. Time delay	2. Appropriate content	2. Indicative of the subject experiencing some anxiety which causes a delay in responding and thereby provides time for the individual to mobilize some psychic means by which he can cope effectively with the stimulus.
3. Time delay	3. Rejection	3. Indicative of the subject experiencing anxiety to the degree that he cannot mobilize any psychic means of coping effectively with the task. Thus the signal anxiety serves the function of warding off a break-through of impulses or ineffective responses. However, the limitation of the success is seen in the primitive or gross defensive maneuver which results in a failure to act.
4. Time delay	4. Inappropriate content	4. Indicative of the subject experiencing anxiety to such a degree that delay is not sufficient to prevent an impulsive or ineffective response. The result is the failure of signal anxiety to function successfully.
5. No time delay	5. Inappropriate content	5. Indicative of an impulsive ineffective response which indicates the lack of signal anxiety and failure of inner reality testing

ample, the individual who indicates that he was about to give a response which was a contamination but recognized its inappropriateness and therefore did not actually give it has less interference from primary process than the individual who after long delay gives it haltingly and he in turn has less intrusion from primary process than the individual who gives such a response without delay or recognition of its inappropriateness.

A sixth way of evaluating the functioning of the ego process is to consider the presence or absence of disturbances in ego boundaries. By ego boundaries we refer to the ability to distinguish inner from outer reality and to maintain appropriate distance from fantasies. This ability is reflected in an appropriate affective involvement with the stimulus material from which can be inferred the underlying capacity to maintain the above distinction.

Although Rapaport (1946) suggests that loss of distance is found in many of the indicators of pathological concept formation that we described in Table IV, it appears valuable to score separately as a distinct dimension the different kinds of variations possible in distance. Distance devices have been described by Ekstein (7) as particularly significant in understanding and treating the fluctuating ego states of the borderline and schizophrenic patient. Loss of distance may be related to loss of object constancy which has occasionally been described in schizophrenia (cf. Anthony, Secheyae) and is being experimentally investigated by Ittelsen and Kutash (1961).

Impairment of the ability to maintain distance can be inferred from the degree to which the individual projects highly personalized attributes onto either the stimulus or his perceptual response to the stimulus. When these attributes are projected primarily onto the stimulus and elaborated as a description of the card, there is evidenced an attempt, although successful, to maintain appropriate distance between self and stimulus and to avoid being overcome by the inner reality. Where the attributes are projected onto the percept to the degree that the percept is experienced as the materialization of the fantasy, the individual is so dominated by the inner

TABLE VI—Disturbances in Ego Boundaries

1. Appropriate involvement in fantasy.	1. Indicative of effective flexible ego boundaries so that the individual is capable of an optimal involvement with both his inner and outer life. There is the freedom to permit fantasy productions and the capacity to recognize the difference between fantasy and reality.
2. Complete denial of fantasy as in a Blot Bound record.	2. Indicative of a rigid constricted, operation of ego functions in an individual who needs to deny and defend against experiencing his inner life. This is reflected in an excessive preoccupation with "objective" reality which is described rather than interpreted.
3. Excessive fantasy involvement and a diminution of distance from the fantasy.	3. Indicative of a weakness in ego boundaries so that the individual tends to confuse and fuse his inner needs and fantasies with his recognition and understanding of the stimuli impinging from without. His ability to test and discriminate between what comes from within and from without is beginning to weaken but the testing of outer reality remains relatively unimpaired.
4. Excessive fantasy involvement with complete loss of distance so that either card or percept appears as reality.	4. Indicative of an ego process in which the capacity to test reality, both inner and outer, is totally impaired.

need system that separate images become inappropriately fused or inappropriately enlivened.

Finally, it is important to know whether the individual himself can recognize appropriately the quality and adequacy of his functioning. It is ordinarily anticipated that in effective ego functioning there is present a critical observing aspect of the ego that can recognize and evaluate the adequacy with which a task has been dealt, or, in some instances, to justify the necessity for dealing with the task on a different kind of level as for example when there is a healthy regression in the service of art or of other creative or empathic experiences. Ordinarily this critical process functions automatically and on an unconscious level, resulting in the appropriate response. However, when disturbance is present, resulting in ineffective coping as evidenced by poor

TABLE VII—Adequacy of Response and Adequacy of Documentation

1. Adequate response	1. Well documented	1. Indicative of an ego process capable of coping successfully with the task and of recognizing and evaluating the adequacy of its own production.
2. Adequate response	2. Minimal documentation	2. Indicative of an ego process which is capable of coping with the task successfully as far as performance but at the same time reflecting some limitation of the ego capacity to evaluate and justify its performance.
3. Adequate response	3. No documentation	3. Indicative of an individual who can act upon the demands of the situation although not necessarily understanding the meaning of his own behavior or being able to justify and explain it.
4. Poor response, improved or rejected in inquiry	4. Critical documentation which a. improves the initially inappropriate response or b. explains the rejection	4. Indicative of an impairment in the coping process but in an individual whose critical functions are relatively unimpaired so that he could still evaluate appropriately his own behavior even though he cannot act upon his evaluation too successfully.
5. Poor response	5. Critical documentation but with impotent recognition and helpless acceptance; no ability to make the necessary corrections but may attempt to justify response through rationalizations.	5. Indicative of an ego process which appears to be in the process of fragmentation. Critical functions are still operating but individual is unable to synthesize different aspects of his ego functioning.
6. Poor response	6. Recognition of inadequacy of response but without initial documentation and inability to correct or rationalize inappropriate response.	6. Indicative of a severe impairment of ego functioning in an individual whose greatest strength is in the critical capacity of the ego but this is accompanied by deficiency in the integrating and synthesizing functions. Thus the individual feels helpless and under the domination of his illness.
7. Poor response	7. Complete acceptance of response with comfort about or indifference to the inappropriateness of response.	7. Indicative of a disorganized ego functioning in an individual who appears to have lost all hold on both outer and inner reality, thus reflecting severe impairment of all aspects of the ego process.

form or poor content, a deficiency in the critical aspect of the ego must also be present. The degree of the impairment of the critical process can vary and such variations provide a basis for inference concerning the capacity or readiness of the individual for insight and self-exploration. The degree to which the individual documents his response indicates the degree to which he is ready to be self-critical. It is possible furthermore for there to be weaknesses in this critical process even where the coping process remains relatively undisturbed. That is, for example, the individual may appear to be dealing effectively with the task but does so with limited or no rationale for his behavior. This critical process is related to those aspects of ego functioning referred to in Schafer's (1954) concept of the capacity for reflection and self-exploration.

In addition to the individual readiness to be self-critical, is the assessment of the appropriateness with which the individual accomplishes this. One objective test manifestation of this process is the adequacy of documentation with which an individual can justify a response, whether it be a good or poor one. In Table VII we present the schema for evaluating the inter-relationship of the adequacy of functioning with the recognition of the adequacy of functioning as indicated by documentation of the response.

In the following discussion we will analyze the Rorschach protocol of a fifteen year old schizophrenic adolescent girl at the beginning of treatment.

RORSCHACH PROTOCOL[1]

CARD I (They showed me this already) 40″ 1 minute 20″

1. Looks like two dolls and in the middle is a —	1. Two sides. D. They're dolls. Their arms are out like this. They're flying. (Why dolls?) Looks cute like dolls.
2. Person with a dress on, doesn't have a head. Can I tell you what I imagine when these are backwards?	2. (Lady?) (D.) No head and feet — just standing still there. Just a lady with a dress.
3. Looks like a person. A man without a head, with his two arms out, and that's all —I can't imagine any more.	3. Holding two dolls like that. Center is a man, like dropping them on the floor, or something.

There is a forty second delay which suggests that there is some difficulty in finding a solution which in turn can be interpreted as suggesting the presence of initial anxiety that interferes with coping with the task. However at the end of forty seconds a solution is found as if the ego now had organized itself effectively. However, even though there is an initial effective coping with the material, (Table II, Item #2 there is, nevertheless, evidence of incomplete ego effectiveness as noted by the intrusion of an inappropriate attribute (flying doll) in the solution (Table V, #4). Further, there is failure of insight or attempt at self-evaluation in her failure to explore the basis for this response (Table VII, #7). Thus it is evident in this response that the signal anxiety provided time for her to mobilize herself and recognize the outer reality appropriately. However, the intrusion of the inappropriate attribute indicated that the inner need dominated the response so that the actuality became somewhat distorted.

The subject continues with a second response which is again appropriate form which indicates a continuation of the ability to recognize the outer reality appropriately. However, there is evidence of disturbance in the conceptual aspect of the ego process, noted in the peculiar attribute that there is a lady "standing still there" but doesn't have "head and feet."

The third response continues in a

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[1] Permission to use the protocols was generously granted by the psychological examiner, Dr. Bernice Eiduson.

similar vein, but with increasing difficulty in the coping process. Here there is the peculiar attribute but the form level also becomes questionable. Thus, not only does the inner need dominate in the actuality, but it interferes with the appropriate recognition of the external stimulus. Examination of the inquiry reveals no ability to improve the coping process. In fact, if anything, the inquiry to Card I indicates comfort and failure to recognize the inappropriateness (Table VII, #7).

Evaluating the responses to this card in terms of the various charts, the following observations are made: lack of stimulus acceptance of expected variety of stimuli can be noted in terms of the absence of the popular to this card (Table III, #3). This omission suggests further the preoccupation with inner needs. There is also omission of any animal response with a limited use of appropriate stimuli plus excessive use of any particular stimuli (Table III, #1c). In terms of affective involvement with the card (Table VI) there is an appropriate degree of involvement in the fantasy rather than a loss or increase in the distance.

In summation, Card I then indicates that this is an individual whose ego functioning tends to be effective in defending the subject against experiencing anxiety, but that the ego process is ineffective in that this is accomplished by accepting inappropriate intrusion of the inner needs as she acts on the reality to achieve her actuality. The absence of critical documentation indicates the diminution in the effective functioning of the critical observing aspect of the ego.

CARD II 25″ 1 minute

1. These are two boys that are fighting. (frowns) That's all I imagine there.

1. D. Hands are together. (shows) and banging their feet together. (Banging?) Feet are closed and the red — the red is like banging together. One boy on each side. It doesn't look like anything when I turn it around the other way.

Card II has a tweny-five second delay, suggesting that the subject again needed time to organize the ego process, but it is less than that which was needed for the first card. At the end of the twenty-five seconds a response was given, which indicates good coping process (Table II, #2). Here the time delay serves the useful function of permitting the individual opportunity to find an organized appropriate means of dealing with the task. However, it is evident that she is not able to integrate all the appropriate stimuli, nor is she able to avoid that which she can not integrate. Thus, the red, representing affect, is something which she experiences as impinging upon her and requiring coping. But she is not able to integrate into the response (as is indicated by use of symbolism) nor is she able to find any effective defense (such as omission of area or of the determant) against it (Table III, #c). Nevertheless, this difficulty does not result in ego disorganization or failure of reality testing. Rather, the affect is treated in a sense as an isolated part of functioning and has a pseudo quality of coping. This is more an indication of the subject's feeling that the task has been dealt with than an actual successful integrated process of ego functioning. This mode indicates a weakness of the integrative function of the ego process for which the subject has found a defensive method against breakdown. The question which can be raised here is whether the divorcing of the stimulus serves the constructive function of permitting the ego process to avoid disturbance by a partial isolation from the main stream. In this response it can be seen that the uncomfortable aspect of what is stimulated in the subject by this card is separated out and away from the main response. This technique may be what permits the effective coping with the major portion of the task. It is interesting to note further that the symbolism here does not reach complete separation from the response, although the red is used symbolically, in this response it remains closer to the action and the objects involved, rather than becoming abstract representation. This lower level of symbolization of representation suggests a less effective defense against the effect stimulus, and the possibility that the subject is actually closer to the concrete action suggested than would somebody who could react to the color with a higher degree of abstraction.

In summation we see that this is an individual who can cope effectively with a major portion of the task by means of isolating from the major portion that aspect of the stimulus which is disturbing to her. This combination gives the surface impression of coping effectively, but actually reveals that there is coping effectively in part and a thin intellectual veneer of coping to another part of the situation.

CARD III 10″ 1 minute

1. These are two black men and they're cooking something in their pot there — they're cooking meat in their pots.	1. P. Shows head, legs, one arm on each side.
2. They have two meats hanging on their wall on something. That's all I see there.	2. Meats on the wall, like red, looks like a roast or a chicken or something — chicken legs. Meat on the side and it's going into the pot. This part down here could be a red bone with meat on it. The form of a big pot and everything.

The time delay has dropped considerably now to a point where it cannot be considered delay, and the response to the card is appropriate content, and use of expected stimuli. (Table II, #1; Table V, #1; Table IV, #1). The fact that the subject is able to respond with a popular response implies the presence of ego capacity for dealing with social situations in a conforming manner. Initially her attempt at responding to the color appears adequate, but as she continues to explore and justify the response some degree of uncertainty and discomfort enters, indicating that the coping attempt was not quite as secure as initially observed. (Table II #1). Nevertheless the adaptive achievement on this card indicates a large degree of success, in that there is no failure in the reality testing, nor is there any of the concept difficulty previously noted.

Summation: the subject's functioning on this card indicates the capacity to make an adaptive achievement, although it may be accompanied by some ego-process difficulty in integrating affect comfortably if the sequence of the three cards thus far be summarized, it can be noted that gradually the subject has moved from responding with considerable difficulty in the ego process to a far more successful adaptive functioning. Comparing Card II and Card III particularly, there is the marked difference in level of success in integrating the color. It may be that Card III is dealt with more successfully because the card itself, structurally, is in congruence with the kind of defense which she tries to use, that is, the color is separated from the rest of the blot so that part of the ego defensive operation is done for her.

CARD IV 10″ 2 minutes and 10″

1. This is a big giant and big feet.	1. Shows head, body, large feet.
2. Sitting on top of a little bench.	2. D. That's a bench she's sitting on — just something she's sitting on — like a bench.
3. (frowns) An animal coming out of —	3. It's like an animal. I don't know what kind — maybe like snails — like an animal coming out of a shell.
4. Out of a cage—sort of a cave.	4. It's like a cave — big and black and it has the form of a cave.

Again the initial reaction time remains at a level that does not merit special consideration and the subject is able to give a response which is effective in terms of reality testing and adaptive to the blot material (Table II, #1). The expected determinants and areas are used (Table IV, #2). The fantasy involvement is appropriate (Table VI, #1). Subject is able to complete this card on an adaptive level in terms of the ego process.

In summation, the total record thus far, it is noted, that the subject was initially quite disturbed, as assessed by the ego process, but that gradually she has been able to recoup and reach a level of functioning which could readily be part of an average record. Thus far it could be interpreted that under the impact of a new, strange, and unstructured situation, ego weakness is revealed in the form of some helpless responding to the stimulus without insight or attempt at self-evaluation. However this does not reach major proportions and relatively quickly disappears as the subject proceeds. Therefore, one would infer at this point that only under periods of initial stress would the subject be likely to directly evidence disturbed thought process, but that these might be sufficiently fleeting that to the non-clinical eye that would not be considered significant. A possible explanation for the improvement noted as the subject reached Card IV could be related to the explanation on Card III. There the chromatic color is separated from the major portion of the blot. On Card IV the chromatic color is eliminated completely. It is as if the removal, then, of the intense color relieves the ego of stress and strain in the integrative process. If this is maintained through the balance of the record, it would mean that the personality is in some state of organization in which the erratic and irrational parts are focused and related to a recognizable stimulus, rather than rising totally from internal confusion.

CARD V Oh: What do you call those? 5″

1. This is a bat eating people like vultures. What do you call them? I never saw anything like that.	1. Shows horns, legs, wings — he's black. This one's black. (?) He's flying.
2. These are two animals fighting, like some goats or lambs, they're just fighting.	2. W. Hat is covering the head which is inside the rock. They're crawling or they're fighting or something. It's the form of like goats or lambs and they're just together there just like they're fighting.

The subject takes only five seconds and gives a popular response, thus indicating no delay and good form (Table II, #1). However, within this popular response of good form there is a strange and peculiar concept, that is, "a bat eating people like vultures." (Table V, #5, peculiar content.) This response evidences the emergence of some primary process in terms of the inappropriateness of the relationship implied in the response as she speaks of bat eating people. It should be observed that this primary process appears within an appropriate form response. The emergence of this archaic material occurs without any seeming discomfort on her part. Thus there is indication of a breakdown in the effective ego functioning. This is important in terms now of answering the question raised above as to whether it was a focused stimulus that created difficulty for the patient. It is clearly observed here that without any chromatic color present, one of the most seriously disturbed responses emerges. This response is also an illustration of the concept of actuality, wherein the perceptual function seems to remain intact in terms of the individual's recognizing reality for what it is and having to impose the conflict onto the reality framework without directly distorting the perceived reality. The result is an inappropriate response to a correctly perceived reality, as contrasted to the inappropriate response to the distorted perception of a stimulus.

In summation, with the record thus far, it becomes evident that the subject's functioning is highly erratic, and includes severe ego disturbances to the point where the presence of a psychotic process must be considered.

CARD VI 15″

I remember what the other teacher said it was like. Sort of looks like — (bites on nails) 1. Sort of a big animal. Something like a squirrel.	1. Shows body, head. a big squirrel. You can tell it's a squirrel from the whiskers. The head looks like a squirrel's head and all the body. (?) Still. It's just standing only.
2. Now I am imagining. There are two men sitting down on their seats, one on each side — they're sort of fighting. One on each side — one on one side and one on the other, and then they're apart. That's all I see.	2. Two men sitting on little benches. They're fighting. Their arms are out. Shows head, bodies, and their arms. Yah, it's like a little bench, right this lower part here.

The initial reaction time goes up to fifteen seconds as the subject says, "I remember what the other teacher said it was like." Thus we see the appearance of some anxiety as the subject faces the card and an attempt to use an external ally to the ego and to remove the threat of personal failure as she implied that the response "sort of a big animal, something like a squirrel," can again be considered deficient ego functioning regardless of appropriateness or inappropriateness of the response to the blot, because to describe the squirrel as a big animal fails to take into account the reality of what squirrels are in relation to other animals. It may well be that the interpretation by the subject of the big squirrel is related simply to the relationship of the blot to the card. The blot takes up a large portion of the card, and in this sense, therefore, it is conceived of as "big," rather than being tested against the reality of the concept. The response itself, in terms of form, is inappropriate and further evidence of the failure of the reality testing process. If one examines the inquiry the subject says, "you can tell it's a squirrel from the whiskers." She goes on to say that, "The head looks like a squirrel's head and all the body." However the comment about the whiskers suggests the possibility that this actually is a confabulation in which her conclusion was based more on the whiskers than anything else, and that the vague description of head and body was simply an after-rationalization.

This disturbed response is followed immediately with considerable recovery in her response to the same card. Its fluctuation gives evidence again of the unpredictable ups and downs of the ego process in this subject. Comparing the first response with the second provides an opportunity to illustrate ego functioning on primary process and secondary process levels. In the first response the content itself appears neutral and conflictual, but emerges with primary process thinking. In the second response, although the content may reflect directly conflictual material, the manner in which it emerges is representative of secondary process thinking.

CARD VII 5"

1. Two little Japanese girls that are dancing. They have little pigtails up, and that's all I imagine.	1. A girl dancing. One girl dancing, pigtail up in the air, and the other pigtail up. No, two girls dancing. (Part of them?) These are their legs. The lower part is their legs. (Japanese?) Looks like two faces, their arms out — just like Japanese girls, just Japanese girls dancing.

The response to this card emerges without time delay and with accurate form and appropriate content (Table II, #1; Table V, #1). It is a well documented response with appropriate involvement in fantasy (Table VI, #1; Table VII, #1). However, in the inquiry there appears to be a momentary lowering of the good level of ego functioning which is related to her apparent inability to maintain the concept of two little girls. In the inquiry it is called one girl, as she describes "pigtail up in the air, and the other pigtail up" as if both of these belonged to one girl. Then she corrects herself and returns to the original well-seen response. Here the functioning of the critical observing aspect of the ego process served to help her recognize the inappropriateness and then to carefully document the well-seen response.

CARD VIII 10"

Oh, this is easy.	
1. Two tigers, no two bears going up a	1. P. Shows head, body, eyes.
2. A mountain, a mountain, or a little hill.	2. Pointed top and it's just like a little hill.
3. Oh, mama, what is this? That's a monster that's scary — the two bears, they're going down because they're so scared. (Gets very frightened, puts card down, hides face in hands.)	3. Oh, what a horrible face. Oh, it's just horrible. The bears are scared, they're running away and they're going downhill after they're going up —that monster has very big eyes, deep big eyes, little holes in his eyes, the nose is long and hanging through the mouth, and his hands are out hanging down. Oh, he's just horrible.

The initial reaction time is slightly higher than the previous card, but is accompanied by the remark, "Oh, this is easy." This remark is followed then by the popular response with minimal but adequate documentation (Table VII, #2; Table II, #1). This is a response in which the actuality clings closely to the reality, and in this sense represents conformity with either individuality. In this way the inner experience has minimal opportunity to act upon the perception. The succeeding response to the card is an extremely disturbed one, in which she becomes over-involved in the fantasy and loses her sense of distance from the blot (Table VI, #4). The marked contrast from the first response to the third deserves special comment because these two responses can be considered opposite ends of a continuum in which the popular response with minimal documentation represents the minimal influence of inner experience, whereas the third response presents a maximum ascendancy of inner experience with minimal attention to the reality and conformity. We see here the extremely idiosyncratic response occurring to the same card in which a completely benign response occurs. This represents a repetition of the extreme fluctuation which has been noted repeatedly in the record.

CARD IX 10″

1. Two persons playing ball, throwing a ball to each other.	1. One person is throwing ball to each other. (Ball?) No, it just looks like it. (Persons?) Two boys, you see their heads and their bodies.
2. They're sitting on top of big chairs, sofa chairs.	2. The green or sofa chairs (?) The form in the green.
3. Oh, I see another monster. This monster is scary.	3. They're both horrible. Fat and big. Pink, two eyes, holes also. Long nose and hanging down and the bears are just afraid of them, because that monster is scaring them.
4. Two deers and they're running down the hill because the monster is scaring them. And they're afraid of them.	4. The faces look like deer faces — you see only the heads and bodies — this is the bodies in the green.

The first response is well seen without time delay (Table II, #1), with appropriate content (Table V, #1). The second response has a surface appearance of appropriateness, but as the inquiry verifies, the form actually is poor and the response was only superficially appropriate and accurate. This response is then followed by another highly disturbed response which has the appearance of a perservative trend, especially when it is considered with the fourth response. This pair of responses is almost a duplication of her dealing with response to Card VIII. Consequently, no further discussion is needed except to add the observation that perseveration of such disturbance permits the inference of even greater disturbance in the personality than has thus far been estimated. The record ends with a confabulated response, wherein she uses the frequently seen deer heads but over-generalizes by adding "the bodies in the green" which is completely inappropriate.

CARD X 10″

1. These are two (how do you call these?) crabs.	1. D.
2. Holding a stick.	2. D.
3. And some spiders — one side is one spider and one side the other spider.	3. P. Blue spiders (blue?) No, just spiders.
4. And two ladies like ghosts and they're blowing.	4. Two little girls like ghosts playing, they have no legs or anything. They're made out of smoke. They look just like ghosts.
5. Horns.	5. Horns.
6. Two worms getting inside a shell.	6.
7. Two deers running — one on each side.	7. Running down a hill.
	8. Two worms inside a shell. (Center D) (a) Two yellow fishes on the side.

The subject begins Card X easily and well. But during the course of the responses it is evident that effective ego process diminishes, as noted in the response where the well-seen people gradually become vague and almost inappropriate in that they are people and playing and yet they now "have no legs or anything. They're made out of smoke." In addition there can be some question about Response #6 in which two worms are getting inside a shell that is smaller than either of them so that a fabulized combination must be considered. On the whole, however, none of the severe disturbances which appeared on previous cards is evident in Card X.

TESTING LIMITS:

Like Card VII and III best because two black men cooking meat and two Japanese girls dancing, very easy to see.

Dislike Card IV, IX, and VIII because it is an ugly monster, that's very bad picture they have, a very bad picture. I like II and X also. Animal Rug? Select VI, looks like a squirrel skin or a rug, furry on top, black and furry, or it could be an animal rug of a bath. IV (could be, no it couldn't be)

Won't try. E does it and says, Her's all the pretty ones and here's all the ugly ones, the black.

In summarizing the Rorschach evaluation, we start with the girl's immediately evident capacity to make a seemingly conforming, although somewhat anxious, surface adjustment to her surroundings. However this adjustment is soon interfered with by the intrusion of an underlying thought disorder. Thus, it becomes apparent that although she may be capable of behaving like others initially, her actual understanding of events and her own motivations in a situation are strange and inappropriate and begin to interfere with her effectiveness in coping with the situation. It is important to note that not only does this ineffectiveness occur, but that she herself, is not aware of this. For example, in this patient's first hour of treatment, several months after her initial visit with the therapist, she remarks that she understood he had not seen her since "because he was making a machinery or something." The therapist understood this remark to be a reference to the social worker's preparation of the girl and her family for the research aspects of the case which necessitated electrical recording equipment which was actually visible in the room. When she again asks what the machinery is for he explains it to her on this rational level. Then they proceed with a discussion of her problem, fantasies, etc., as if she had understood fully his explanation. It is only at the end of the hour that she refers to her conviction that the machinery is to cure her by a kind of surgery or a kind of magic influencing machine. (Ekstein, 1963)

In other instances the superficial adjustment breaks down as the effectiveness of the anxiety in mobilizing her coping resources begins to fail and panic and disorganization make their appearance. Thus in another hour with this patient she describes her experiences as she attempts to deal with a malfunctioning TV set in the following way:

> ". . . so I started fooling around trying to fix it. And I never could fix it so anyway I spent a whole hour trying to fix that channel. I kept on changing stations . . . finally I fooled around with the TV antenna in the back of the TV . . . I would try to fix it . . . there were three little buttons that told you how to fix the TV and, but I didn't even understand what it really meant you know . . . I took a screw and started turning them to see if the TV would get fixed and the TV jumped out worse and got in line . . . the picture was low down . . . then you could see all the people large, big you know . . . but then it got shrinked up on the end of the picture . . . suddenly I started knocking. I was angry, I started knock, knocking . . . I ruined everything, and you know what I did, I ruined the television . . . "

Thus we hear in this experience of how she initially attempts to cope with the situation rationally but as her anxiety mounts with lack of success she becomes increasingly panicked and as she becomes more disorganized the chaos within her is finally projected onto the television set and she suffers an acute psychotic episode.

One of the most striking features about the record are the seemingly unpredictable and extreme fluctuations in level of functioning which are reflective of the underlying shifts in ego states. The points of disorganization do not seem to occur at the expected points of stress and pressure; rather they seem to occur in response primarily to a variety of inner impulses and fantasies that cannot be predictably related to stimuli in the environment, as for example the pressure of emotional stimulation. Although she does have difficulty in integrating her affective life and tends to isolate her feelings by means of a thin intellectualized veneer, she does so without marked interruption in her level of functioning. If the emotionally stimulating situation is fairly organized and structured for her she can function quite effectively. However, in a strange or unstructured situation she begins to respond in a more helpless uncritical fashion, with little or no capacity to reflect about herself. Thus for example, after several years of treatment she has reached a point where she travels alone by bus to a day care treatment center. However in this situation she will indiscriminately beg for money or cigarettes from whomever she encounters irrespective of whether she is in actual need of it.

The schism between outer and inner reality testing is a very prominent feature of this girl's record and is most significant in understanding the girl's behavior.[2] Thus she may appear to be making a superficially adaptive adjustment with a seemingly appropriate comprehension of her environment at the same time there may emerge primitive archaic features. She may then impose these upon her perceived reality but in such a way as not to distort the accuracy of her perceptions so that neither she nor those with her recognize the entirely inappropriate nature of her inner life. For example, she readily makes promises which commit her to activities of which she is not capable. She will spontaneously promise to write a story for the therapist by the next session which is externally appropriate but which good inner reality testing would tell her is impossible for her. Such unrealistic promises are frequent for her and are confusing to the naive recipient of them. For example, this child, after a year in treatment, would promise the volunteer occupational therapist to return the money she frequently borrowed. Subsequently she could not comprehend their distress at her not fulfilling the promise and they could not comprehend her lack of recognition of the obligation to fulfill it. However there also does occur the more usual kinds of perceptual distortion in which she pays minimal attention to reality and where her behavior may begin to appear more flagrantly deviant as the primary thought disorder becomes more evident. As she becomes more and more preoccupied with primitive fantasies on a primary process level reality percepts become increasingly subordinated to inner preoccupations and delusional misinterpretations of her surroundings may be accompanied by hallucinated objects which are projected onto her environment. Thus, with this girl there have been occasional episodes where the fantastic inner anxiety over her own impulses has created sufficient disorganization and regression in the level of ego functioning that a delusional and occasionally hallucinated creature makes its appearance urging her to do evil or to destroy those around her who tempt her to do evil.

It is evident that such a method of evaluating the Rorschach reveals information about an isolated although important area of ego functioning — specifically, the ability of the ego to cope with reality, outer as well as inner. This in turn gives us much valuable information about the interplay of adaptive and defensive mechanisms and the critical and integrative functioning of the ego, particularly as we can explore the ways in which she fuses her perceived reality with her inner reality and creates for herself her own idiosyncratic actuality.

One brief clinical note about the youngster whose record has been evaluated. This schizophrenic girl interestingly enough presented somewhat of an initial diagnostic problem because of the effectiveness of certain adaptive aspects in her functioning. As long as she could function in a fairly structured situation, or when she could structure it herself by role playing a latency age child, she was able to give the impression of a dull infantile hysteric-like youngster. However when this facade was penetrated either through projective tests and/or pressure of inner conflicts, it became increasingly apparent that she was suffering from an extensive and flagrant schizophrenic reaction. Nevertheless there occurred isolated and unpredictable islands of conforming behavior alongside of markedly bizaare behavior. Progress in treatment was marked by the unpredictable nature of the shifts, in level of functioning, as noted in the Rorschach, in preoccupation with inner or outer demands, as well as in the fluctuating insight into her own illness.

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[2] Permission to quote this excerpt from the tape recording of the therapy sessions has been generously granted by the therapist, Rudol F. Ekstein.

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New Thoughts About Ambiguity and the TAT[1]

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Summary: The assumption that the extent of projection in projective techniques is a monotonic function of the degree of ambiguity in the TAT is seriously questioned. A review of several studies dealing with ambiguity yielded the conclusion that highly ambiguous TAT pictures were least useful for personality assessment. On the other hand, pictures which are highly unambiguous with regard to what is going on and which contain two or more persons, seem most promising for clinical assessment.

In graduate school in relatively ancient times when Truman was still president, I learned, like many budding clinical students, that "the greater the ambiguity in a TAT card the more the subject revealed his inner private world." This made sense to me, since when a person makes up a story, if the picture is not clear, he cannot simply describe the stimulus, but must project his own characteristics into the story. It all seemed rather straightforward and I never gave a second thought to the fact that *nobody had empirically demonstrated this fact*. It was, after all, simply a question of common sense.

Still, there must have been some subliminal hidden doubts for upon reading Eron's classic monograph on the TAT (Eron 1950), I turned quickly to his tables to find out exactly how many themes Card 16, that most ambiguous of TAT cards, had produced. Eron found it to be the least productive of all the male series of cards in terms of total number of themes produced. Next, I alighted on an article by Kenny and Bijou (1953) in which they had students rate the TAT cards for ambiguity. They found via Q-sorts that medium-ambiguous cards provided more information about personality than high or low-ambiguous cards.

To test this interesting finding further, I took the ambiguity value of the cards of Kenny's and Bijou's study and compared them with the frequency of themes elicited in Eron's study. There was essentially no linear relationship, but a very high curvilinear relationship (etas ranged from .43 to .95) such that medium-ambiguous cards elicited the greatest frequency of themes (Murstein 1958b). In another little study with women college students (Murstein 1958a), I found that ambiguity and pleasantness of association were positively related, with the most ambiguous cards essentially yielding banal, superfluous and pleasant associations.

I was now ready to probe more deeply into just what medium ambiguity was. I believed that those cards were best for projection which were clearly structured as to *who* was in the picture, but relatively ambiguous as to *what* was going on. Such cards might be considered as medium-ambiguous because the *who* and *what* characteristics were perhaps averaged together in such pictures. Card 13MF is a good example of what I mean. The picture clearly shows a young man with his arm over his head and a woman nude at least to the waist lying beneath the covers of a bed. *What* is going on, however, is uncertain as evidenced by the fact that many people see it as a love scene of some kind, while others see it as a scene of illness.

Before testing this idea, however, it was necessary to distinguish between two often confounded variables, "structure" and "ambiguity." "Structure" was defined in the physical sense as the arrangement and organic union of parts, whereas "ambiguity" denoted instead, the quality of being obscure or uncertain in meaning, especially where either of several interpretations is possible.

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[1] Revised edition of a paper presented as part of the symposium "Projective Techniques Revisited" at the 1964 Eastern Psychological Association meeting.

The ambiguity of each card was to be obtained by the response of the subjects (college men and women) themselves rather than by the judgment of clinical experts. My reasoning was that the clinician has heard so many stories that he is no longer able to recall his native reaction to the pictures, but his judgment probably reflects a mixture of his own views with those he has heard. Later work by Starr (1960) would appear to support this contention. I, therefore, had sheets of paper which asked the subject making up a story, specifically *who* were in the picture in terms of age, sex, and relationship to each other, if more than one character was present. The subject further wrote *what* was happening, *why* this was happening, and how the story would *end*.

A method of analyzing or categorizing the stories was still needed and here I was fortunate to meet Professor Kenny at a conference on the TAT and learn that he had adopted a method of categorizing cards based on information theory. The measure which I then utilized to categorize the aforementioned dimensions *Who*$_{(age)}$ *Who*$_{(sex)}$ *Who*$_{(relationship)}$, *What*, *Why*, and *End*, was $\hat{H}$ the measure of uncertainty, whose formula is

$$\hat{H} = -\Sigma p\,(i) \log_2 p\,(i)$$

where $p\,(i)$ is the proportion of cases in any i category.

The higher the $\hat{H}$ value the greater the uncertainty or ambiguity existing in a card. To illustrate this point, consider the hypothetical situation where three different cards each elicit four needs, but in varying proportions as in Table I. Notice that Card 2, which elicits the four motives in equal proportion, has the greatest uncertainty, whereas Card 1, which is dominated by the aggression motive, has the least uncertainty.

TABLE I—Proportion of Imagery in Stories Told and Measures of Ambiguity ($\hat{H}$) for Each Card

Motive	Card 1	Card 2	Card 3
Aggression	.96	.25	.50
Sex	.01	.25	.10
Achievement	.01	.25	.20
Affiliation	.01	.25	.20
$\hat{H}$	.26	2.00	1.75

Before proceeding to analyze the TAT stories collected from a college population, I hypothesized, in accordance with the previous discussion, that uncertainty as to *Who* was in the picture, in terms of a) age, b) sex, and c) relationship, would each correlate negatively with uncertainty as to *What* was happening. In other words, the less ambiguous the characters in the picture, the greater the variability in the kinds of themes elicited. It was further assumed that the greater the variability of themes (What), the greater the extent of projection on the part of the subjects. The actual method of categorizing has been described elsewhere (Murstein, 1964).

The hypothesis was substantiated in that the three *Who* variables showed negative correlations with the *What* variable, ranging from −.25 to −.37 for men and —.31 to −.37 for women, all but the value of —.25 being significant at the .05 level or beyond.

To further substantiate my hypothesis that the less the ambiguity, the greater the projection, it was incumbent upon me to demonstrate that uncertainty in the *Who* variables was negatively correlated with projection, and that uncertainty in the *What* variable, which we were using as an index of projection, was in fact positively correlated with projection. A three point scale of projection was, therefore, constructed which proved to have adequate interscorer reliability (96 per cent of agreement). The correlation, while in the right direction, proved to be rather disappointing in magnitude. The three *Who* variables showed negative correlations with *Projection*, ranging from —.09 to —.16, none of which was significant for a one-tailed test. The correlation of *What* with *Projection*, while in the right direction ($r = .26$), also did not reach significance. We had at best, therefore, isolated only a minor source of projection variance.

Inspection of our data, however, indicated that the more a particular aspect of the story-telling task depended on the stimulus, the less likely the projection. The three *Who* variables, which are simple identification tasks and strongly dependent on the stimulus, thus showed non-significant negative correlations with *Projection*. *What*, which is still stimulus-dependent, but not so much as are the *Who* variables, showed a non-significant positive correlation of .26. The *Why* variable, which calls for an interpretation by the subject, is still less a function of the stimulus. This variable showed a positive and significant correlation of .40 ($p < .05$) with *Projection*. The *End*, which is least dependent on the stimulus, showed the highest correlation with *Projection* ($r = .49$ $p < .01$).

We had found, therefore, that *Projection* depended more on those aspects of the story-telling task which were independent of the stimulus than on the mere uncertainty value of a variable. This finding, however, told us nothing about what kind of ambiguity of stimulus was most apt to elicit projection of the *Why* and *End* variables which in turn yielded the most personality-meaningful responses. This question was to be investigated in yet another study.

In the meantime, the present study was examined to investigate whether uncertainty of meaning was related to the kinds of organisms represented in the pictures (human or non-human). With reference to humans only, did it make a difference whether there was one person or many persons? And what about their sex? Was there a difference between pictures with men only as opposed to those with only women? Did it make a difference for pictures where more than one person was shown whether they were of the same or opposite sex?

To answer these questions the pictures were classified into the categories Multiple Persons, One Person, No Persons, Males Only, Females Only, and Both Sexes. The categories Multiple Persons and Both Sexes are non-independent, since Multiple Persons being more inclusive, contains groups of both sexes and those of the same sex. The One Person category is not independent of the Males Only or Females Only categories since these are subsummed within it.

These classifications were compared against each other with regard to uncertainty for each of the following variables *What*, *Why*, *End*, *Projection* and *Hostility*. The first three of these variables (*What*, *Why*, *End*) are expressed in percentage of uncertainty, the last two on quantitative point scales. The intra-variable t test results are too numerous to present here, but are presented elsewhere (Murstein, 1964). Here, it suffices to present a summarization of the standing of each of our classifications as manifested by their means and standard deviations in Table II. Inspection of this table shows that the cards containing *both sexes* exhibit higher uncertainty values for *What*, *Why*, and higher scores for *Projection* and *Hostility* than any of the other categorizations. Only on the *End* variable was uncertainty percentage for this classification lower than that of some of the other classifications, but no significant differences were found for this variable (Murstein, 1964). This finding, which is corroborated by oth-

TABLE II—Mean and Standard Deviation Values for Picture Classifications for What, Why, End, Projection and Hostility Variables[a]

	What		Why		End		Projection		Hostility	
Category	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
No Persons	55.7	10.8	61.8	3.2	79.9	6.5	1.71	.15	.69	.29
One Person	53.7	14.5	63.3	5.0	76.8	9.2	1.77	.14	1.15	.88
Males Only	56.5	14.9	63.5	9.5	72.7	12.1	1.74	.18	1.16	.70
Females Only	58.5	17.0	68.6	9.4	77.5	9.3	1.78	.15	.93	.50
Multiple Persons	63.8	14.2	72.5	10.4	72.6	9.4	1.88	.22	1.39	.69
Both Sexes	66.9	11.1	75.7	5.6	73.4	5.4	1.97	.18	1.48	.63

[a] Values of What, Why, and End Variables are given in percentage of uncertainty. Projection is rated on a three-point scale 0 to 2 and Hostility on a five-point scale of 0 to 4.

er analyses (Murstein, 1964), indicates that the *endings* of stories tend to be independent of *who* is in the picture. Except for story endings, however, it appears that the construction of pictures with more than one person, preferably of both sexes, provides the richest source of material for personality assessment.

The time had now come for a crucial test of the impact of ambiguity upon TAT response. Two dimensions "age and sex," and "emotional interaction" were combined factorially to yield four experimental conditions. An artist[2] drew a set of 5 cards for each condition. The pictures which dealt mainly with interpersonal situations were similar except for the following variations:

Set 1: This set is clearly structured with regard to the sex and age of the characters as well as the kind of emotions they are expressing.

Set 2: This set is structured with regard to the age and sex of the characters, but the emotions experienced are ambiguous.

Set 3: This set is structured with regard to the emotions experienced, but the age and sex of the characters are ambiguous.

Set 4: This picture may be identified as containing the same number of human beings as the other sets. Apart from that, neither sex, age, nor emotional expression is structured.

Which of these sets would elicit the most projection on the part of subjects? The results of earlier studies had shown that *Who* and *What* showed a slight negative relationship to each other. If one could assume that *Projection* was related to uncertainty as to *What* was going on, then Set 2 which was structured for sex and age only, but not for emotional interaction should be the best set. On the other hand, in the earlier study, *Projection* and *What* had only correlated .26, whereas *End* showed a much higher correlation with *Projection* of .49. Further, *End* was independent of the *Who* variables. Thus, a major portion of *Projection* variance was not being accounted for by the *Who* variables.

Perhaps then, Set 3, which offered a combination of structure and ambiguity (emotions structured, age and sex ambiguous) might be useful too, in eliciting projection. Set 4, in which all characteristics were ambiguous, should do next best in accordance with my earlier findings. From the point of view of traditional projective technique belief, however, it should do best of all because it featured maximum ambiguity and supposedly, therefore, maximum opportunity for projection. Last, the performance of the "all structured" Set 1, according to our studies, would be difficult to predict. The clearly structured *Who* variables should facilitate variability of *What,* but the clearly structured interaction between the characters might limit projection. According to traditional projective theory, however, the absence of ambiguity should prove an anathema to projection and this set should fare the poorest of all.

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[2] Richard Hoff

For this study, undertaken with the Reverend Arthur Schwabe, 16 persons equally divided by sex who were being seen in psychotherapy, comprised the subject population. All subjects might be classified as neurotics in that they were functioning in their professional roles or as housewives. All, however, had interpersonal difficulties which disturbed them sufficiently so that they had undertaken psychotherapy. Each therapist contributed four clients whom he had seen for at least 10 sessions, and also filled out a 51 item Q-Sort which described the key dynamics of the subject's personality. This Q-Sort, incidentally, had been constructed by Reverend Schwabe and myself so as to contain items that one might reasonably expect would have relevance *both* to the *therapist* and to the *TAT interpreter*.

The subjects were randomly assigned to one of the four sets of five cards and four different experienced psychologists, none of whom had tested the subjects, each examined four of the total of 16 thematic protocols. The protocol Sorts were correlated with the therapists' Sorts with the following average correlations: Set 3, $\bar{r} = .30$; Set 1, $\bar{r} = .22$; Set 2, $\bar{r} = .14$; Set 4, $r = .06$. The correlation in Set 3 proved to be significantly greater ($p < .05$) than that of Set 2 and Set 4 ($p < .01$), but with only a trend in that direction with regard to Set 1. A Q-Sort by two psychologists for an "average client" served as a control. The idea here was to see if the TAT correlated with a stereotyped concept of a client. In fact, it did not, the correlations between each of the four sets of Q-Sorts and those of the stereotype judges ranging from $-.24$ to $.34$ and averaging out to .11. The TAT judges, thus, were not basing their judgments on a stereotype of a psychotherapy client. The protocols were also scored for extent of projection in the stories, with the rank order of the cards being exactly the same as above and with Set 3 eliciting significantly more projection than any of the other sets. The results clearly demonstrate that a lack of ambiguity with regard to emotional interaction is facilitative of the kind of projection making for valid personality assessment. The ambiguity of the age and sex of the characters would appear to be secondary, with ambiguity in this instance coupled with clarity of emotional interaction providing the best instrument for eliciting projection for our sample. Even without the characters' age and sex being ambiguous, a substantial correlation remains so long as the emotions are clearly depicted. Where the age and sex are clear but the emotions are not, contrary to my expectation, only a modest correlation ensued. In the absence of ambiguity for both emotional interaction and age and sex, the correlation was minimal.

DISCUSSION

There are some relatively clear conclusions that stem from the above studies and some that, also, are not as clear. All the studies agree in indicating directly or indirectly that highly ambiguous cards are the *least useful* for personality assessment. Ours is a society that usually does not act spontaneously in the absence of behavioral cues. Many of us have trouble carrying on a conversation in the absence of adequate structure. Similarly, in the projective technique situation, which features extremely ambiguous pictures, the subject faced with an absence of cues is apt to become defensive, realizing that whatever he says may be interpreted against him. The semi-ambiguous situation often provides enough cues to elicit verbalization regarding the desired dimension, but not so many as to forestall individual variation of response. Thus, structuring who is in the picture in terms of age and sex allows sufficient cues to arouse motives related to these cues so that more variation in the kinds of themes (*What*) occurs than is the case where cues are almost entirely absent. Since projection is inversely related to the extent of stimulus determination in the particular aspect of the story-task asked of the subject, we get the following sequence: subject is asked *who* is in the picture; the response is primarily stimulus-determined and, accordingly, *Who* shows no significant correlation with *Projection*. When we ask him *what* is happening, we still rely heavily on the stimulus, but not so much as in the case of simple identification. The correlation between *What* uncertainty and *Projection* was found to be .26. When we ask *why* what is happening happened, we are asking for an interpretation and we have increased the opportunity for projection (correlation between *Why* and *Projection* = .40). The story *end*, however, is still more free of the stimulus impact and correlates best with *Projection* (r = .49).

What I am suggesting, therefore, is that the stimulus must be sufficiently structured as to what is going on so that the subject may react to these cues and think along the dimension we want him to think about. Having got him cogitating along desirable lines, he projects more meaningful material than he would otherwise. From the studies I have reported I would conclude that this "extra" projection most probably comes not so much from the content of *what* is going on, but from the interpretation of *why* this happened and especially how the story *ended*. I am reminded as I write this that this interpretation fits Eron's findings (1950) that while there were few differences between his subject populations of varying psychiatric health with regard to emotional tone, considerably more differences were found between the groups when story endings were compared.

Now all of this fits, I think, fairly nicely, but what about those equivocalities I had reference to earlier? The earlier data indicated that cards with both sexes represented are maximally sensitive to projection. Why this should be is not difficult to surmise. Most of our needs and fulfillments are a function of interpersonal interactions. Consequently, the presentation of two or more persons is more apt to trigger off these problem areas than the picture of only a single individual. Moreover, it is possible that our fantasy life as well as emotions may be stirred slightly more by interaction with the opposite sex than with the same sex, thus accounting for the superiority of the cards with both sexes represented as opposed to those with only one sex depicted.

We have, however, also reported that the set with *emotions structured* but *age and sex unclear*, was best for projection. We, thus, have some contradiction in our findings concerning the ambiguity of the figures with regard to sex. Unfortunately, from these two studies, we have very poor ecological sampling as Brunswick would say. One of our populations was composed of neurotics, the other of normals. One of our studies used a response interpretation of ambiguity, the other depended on actual alteration of the stimulus properties. These variables are confounded or tied together and we would need several more studies to untie them.

If we consider only non-contradictory evidence we can at least, however, postulate what a first approximation to an ideal thematic card would be like when used as a broad-band instrument. If it were intended to measure a specific need, for example, hostility, it would be structured so that hostility would be apparent in the picture. To achieve this and to allow maximum projection we would have more than one figure in the picture and the ages of the characters would be ambiguous. In analyzing the stories, as mentioned earlier, we would focus major attention on the *why* and *end* of the story. For reference to specific interpersonal situations, however (e.g. Oedipal situation), the age and sex of the characters would be varied as desired.

With so few studies, I can scarcely believe that my speculations, which have not been securely anchored by an extensive amount of empirical evidence in carefully specified conditions, will not need to be modified as more evidence is accumulated. Yet, I would indeed be surprised if the major thesis presented here, that extensive ambiguity of picture is more of a hindrance than a help for most purposes, were to be proven false. The investigations of the future, I think, will concern themselves more with the determination of what kinds of cues arouse but do not determine responses, rather than with the creation of fuzzy pictures in the hope that the absence of strong cues will lead to the royal road of personality projection.

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A Note on Zulliger's Theory

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Summary: Tests with fifth-grade pupils of Zulliger's hypothesis that children giving texture responses on the Rorschach profit more from education than those who do not suggest that, at least in the present sample, the reverse is true.

Piotrowski (1957) has written that Zulliger ". . . underlined the favorable prognostic and educational value of the light-shading texture responses. . . . Children with texture ShR profit more than do those whose records have no texture ShR" (p. 252). Beck (1952) and Klopfer, *et al.* (1954, 1956) have made no such assertion. Klopfer, *et al.*, related the Fc, cF, and c responses to affectional needs, while Beck felt that further research on his T score was needed before its significance would be clear.

Tests of Zulliger's theory were made using the Rorschach protocols of 73 fifth-grade pupils from a wide variety of socio-economic backgrounds in a suburban public school. In the Performance Proper, 34 of the students gave c responses; the others did not. However, in the Inquiry phase, fourteen additional pupils gave texture responses as additionals.

Intelligence (measured by the Lorge-Thorndike Intelligence Test) had no statistically significant relationship to the use of c in the Performance Proper or the Inquiry (chi square =.23).

Examination of achievement test scores (Stanford Achievement Test administered at the end of the fourth grade to 57 of the sample) yielded three significant relationships to the use of texture responses. These are shown in the following tables.

In each of these three cases, the significant relationship is in a negative direction, contrary to Zulliger's hypothesis. Whether this can be said to contradict Zulliger's theory depends on one's definition of profit from education. Within the limits available (i.e., verbal intelligence and standardized achievement tests), however, these results do indicate that children of below grade-level achievement in arithmetic, and boys of below grade-level achievement in both reading and arithmetic, have a greater tendency to use texture responses on the Rorschach than do classmates scoring at or above grade-level on the same tests.

TABLE I—Arithmetic Achievement Levels and Use of Texture Responses on the Rorschach of Fifty-seven Fifth-grade Pupils

Grade Level	No Texture R	Texture R
4.9+	27	18
4.8—	3	9

Chi square = 4.61 ($p < .05$)

TABLE II—Reading Achievement Levels and Use of Texture Responses on the Rorschach of Twenty-six Fifth-grade Boys

Grade Level	No Texture R	Texture R
4.9+	7	8
4.8—	1	10

Chi square = 4.25 ($p < .05$)

TABLE III—Arithmethic Achievement Levels and Use of Texture Responses on the Rorschach of Twenty-six Fifth-grade Boys

Grade Level	No Texture R	Texture R
4.9+	8	11
4.8—	0	7

Chi square = 4.41 ($p < .05$)

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Effects of Environmental Stimulation On The M, FM, and m Responses In The Rorschach

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Summary: The Rorschach was administered twice to 20 young male subjects in its usual clinical form with an interval of about a year between tests. The second administration was carried out on board ship under conditions of a severe storm, which is assumed to have provided marked movement stimulation. The difference between the tests was analyzed for variation in the total number of responses, and number of human movement, animal movement, and inanimate movement responses. It was hypothesised that since M and FM responses reflect basic personality characteristics or attitudes, no change in their appearance should occur even under severe environmental stimulation. The m response, however, was expected to reflect the individual's response to stress and therefore to change under the experimental conditions. The results showed no change in the M and FM responses, but a large and significant increase in the m responses. All three hypotheses were thus confirmed.

Rorschach (1942) makes the statement, based on empirical observations, that the M response represents aspects of inner life and creative attitudes, traits which one would expect to be fundamental personality attributes, and not easily affected by environmental changes. On the other hand, Rorschach also states: "The muscular tension characterizing concentrated voluntary attention directed at the external world makes M disappear." Similarly, Phillips and Smith (1953) state: "M . . . is the first response to be restricted when it becomes urgent for an individual to concentrate on his immediate problem, and as anxiety increases."

Piotrowski (1957), dissenting, explains the possible rise in M as a reaction to motor inhibition, or its decease as a result of motor stimulation, not as a fundamental change in psychological orientation, but rather as a mechanical artifact. Elsewhere Piotrowski (1960 b) states: "M represents responses most intimately connected with his total personality . . . thus M represents traits stabilizing the relationship between the individual and his environment."

Faced with evidence by Metzhoff, Singer and Korchin (1953) which shows an increase in M responses following a period of deliberate motor inhibition, Piotrowski (1960 a) explains this to be a result of an increase in the introspective approach by the subjects, who under the experimental conditions must have paid more attention to their mental processes.

Similar evidence, showing an increase in M responses following motor inhibition, is offered by Werner (1945) and by Neel (1960). Goldman and Herman (1961), however, find that no such change occurs. They explain this contradictory finding by pointing out that their subjects were mechanically immobilized, while in the previous studies motor restriction was under conscious control, and thus not imposed by objective environmental stresses.

This might well prove to be a crucial difference, for if we accept that M responses are indeed representatives of fundamental personality traits, no short term environmental stimulation should affect these responses. Only deliberate attitude change by the subjects (as in the case of voluntary motor restriction) should be able to affect the balance of disposition as reflected by M, and possibly also FM responses.

Chance offered an opportunity to investigate the effects of environmental movement stimulation, rather than the movement inhibition which has been investigated to date. The movement to which the subjects were submitted was severe and beyond the subjects' control.

Three hypotheses were offered as to the expected results: 1. No change in the number of human movements (M) should occur. 2. No change in the number of animal movement (FM) should occur; since, to quote Piotrowski (1957) FM represents attitude towards the past, rather than attitudes towards the present. This is well exemplified by the cases of paraplegic patients whose M responses altered while the FM remained unchanged. Klopfer (1954) similarly states that FM represents the most instinctive layers within the personality. Thus one would expect independence of environmental stimuli. 3. Some increase in inanimate movement (m) was expected.

Klopfer (1954) says: "m . . . expresses an awareness of conflicts which might exist either between different impulses within the personality, or between impulses of the individual and some *frustrating forces in the environment.*"

SUBJECTS

The subjects were 20 national service men, serving in the Israel Navy. Their ages were between 18-20. The subjects had intelligence ratings between high average and superior.

The Rorschach had been previously administered, as part of routine selection procedure. The test was given individually in accordance with the standard clinical procedure, and scored according to Klopfer (1954).

The time which had elapsed between the initial administration and the one reported below, ranged between 12-18 months.

EXPERIMENTAL CONDITIONS

The Rorschach was administered for the second time on board ship. The administration took the usual form and was given by the same tester who did the initial testing.

Testing commenced after the ship had been caught in a severe storm. The storm was about 10 hours old at the start of the testing, and everyone on board had adjusted to the conditions imposed by the storm. The testing was spaced over a period of 72 hours, during which time the storm did not abate in the slightest.

The ship had a constant roll between 12 and 22 degrees with marked pitching. Wind gusts of 100 knots caused not infrequent 30 degree roll.

It was necessary to secure all loose objects; hence, not surprisingly all subjects were observed to hold their cards firmly in their hand, rather than leave them on the table. Otherwise test behavior appeared normal. During the test period there was no lull in the storm, and it may be assumed that all testing was carried out under conditions of intense, continuous, and irregular movements in all directions.

None of the sbjects suffered from sea sickness or any acute physical discomfort, although it was obviously impossible to achieve complete physical relaxation.

The subjects can be assumed to be test-sophisticated, having been submitted to various testing throughout the previous year. They were all cooperative, and if there was any resentment at being tested under such conditions, it was not overtly expressed.

RESULTS

The nature of the results is such that it appeared that most information would be conveyed by the presentation of the raw data.

Table I gives the actual scores of each subject in each of the M, FM, and m categories, in each of the tests, as well as his total response number (R).

Inspection shows that there is in fact no change of any significance between the number of total responses, M and MF responses, between the first and second administration. The only significant change occurs in the m responses.

TABLE I—Distribution of Individual Subjects Total Responses (R) and M, FM & m Responses During Both Tests

subject	R		M		MF		m	
	I[a]	II	I	II	I	II	I	II
1	10	10	1	1	2	2	0	1
2	15	14	2	2	2	2	1	1
3	17	17	1	1	2	2	1	3
4	12	12	1	1	1	1	0	1
5	10	10	0	1	2	2	1	1
6	25	27	3	2	2	1	2	3
7	14	17	2	2	4	3	1	1
8	11	10	1	1	0	0	2	3
9	15	14	1	1	2	3	2	2
10	15	16	1	0	2	3	1	2
11	18	18	2	1	3	3	0	1
12	10	12	2	2	3	3	2	3
13	34	31	5	6	7	6	4	5
14	10	11	1	1	3	3	2	3
15	13	13	1	1	2	1	0	0
16	13	12	2	1	2	2	1	2
17	15	16	3	3	1	2	1	1
18	19	20	2	2	0	2	1	2
19	10	12	0	1	1	1	0	1
20	22	20	3	3	3	3	2	3

[a] I represents the results in the first test; II represents the re-test.

Since it may be argued that the change in the movement categories is primarily a function of the change in the total response number, Table II was constructed. This table represents the distribution of the number of cases of various movement categories in relation to the changes in response numbers.

The numbers involved are too small to submit to meaningful statistical analysis; however, inspection alone reveals the following information:

1. M responses remained unchanged in 13 cases (65%), and the remaining cases split equally between increase and decrease, with no apparent relation to the direction of R change.

2. FM responses remained unchanged in 12 cases (60%), and the remaining cases split equally between increase and decrease, with only a slight, possible relation to R increase, (i.e., R increase might account for some of the FM increase).

3. m responses remained unchanged in 6 cases (30%), while in all the remaining 70% of cases there was an increase in response numbers, with little or no apparent relation to the direction of R change.

At the risk of losing information, but enabling some statistical analysis a 2 x 2 table was prepared, grouping together M and FM responses (number of cases changed and unchanged) compared with the m responses (number of changed and unchanged cases). $X^2=4.4$ (df 1) with p between .05 and .02, thus confirming the difference in the nature of the m category change compared with M and FM categories change under the stimulation.

This difference is further enhanced if one takes into consideration the fact that the change in the M and FM categories is in both directions, while all m changes are in the one direction, showing increase only.

DISCUSSION

The repeat testing was carried out under circumstances which obviously fulfill the requirement of environmental stimulation. The results show a comparatively high degree of consistency between the total number of responses. A greater variation is generally expected (Harrower, 1958). This can possibly be accounted for by the generally stressful conditions of the second testing. It is often found

TABLE II—Distribution of Cases and Direction of Change in the M, FM and m Responses in Relation to the Changes in Total Response Numbers (R)

	R	M			FM			m		
		=	+	—	=	+	—	=	+	—
No change (=)	6	4	1	1	5	0	1	2	4	0
Increase (+)	8	5	1	2	3	3	2	2	6	0
Decrease (—)	6	4	1	1	4	1	1	2	4	0
Total	20	13	3	4	12	4	4	6	14	0
			20			20			20	

that under conditions of stress the intellectual elasticity of the individual is reduced, and he reverts to past, known, patterns of behavior rather than seek original possibilities. It may be that these considerations apply also to the Rorschach situation, and thus would explain the small variance in the total response numbers.

Content analysis showed no increase in responses pertaining to ships, water, sea, etc., and did not seem to reflect any of the objective environmental stresses. The slight variation in content which was noted in relation to the original testing may well be accounted for by the maturation and outlook changes in the comparatively young subjects.

It is possible to account for the relatively low M scores by taking into consideration that all subjects were highly physically active, athletic types, who, as Rorschach (1942) points out, tend to have fewer M responses.

As quoted above, Phillips and Smith expect M to be restricted as the individual has to concentrate on his immediate anxiety. Even if we do not assume the actual environment to constitute a threat and an anxiety cause; the testing situation must have been perceived as such, for, as the subjects were well aware, the testing might have decided their immediate military future.

This threat, which must have been felt by the subjects, might also account, in part, for the m increase. The structure of the experiment does not enable us to allocate the genetic factors behind the increase in m. This potential increase in aggression and opposition could be caused by an attitude of resentment to the testing, as by feeling of resentment and helplessness at being tossed about on the high seas.

Of the m response Phillips and Smith (1953) say that it occurs in records of individuals who sense disruptive and disintegrative forces at work in their environment, against which they are impotent, indeed a very fitting discription on the situation under which the repeat test was administered.

It is the last mentioned finding, the change in m, which is seen as the most important result of this experiment. Changes in M and FM have been investigated, but little work on the effects of environmental stresses on m has been done. While m is a comparatively rare response, it seems to have high significance when occurring, and merits further study.

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Regression in the Service of the Ego: A Case Study[1]

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Summary: A study was made of a 41 year old woman who was given psychological tests at the beginning of a five-year period of psychoanalytically oriented psychotherapy. From extensive material gathered from her therapist it was clear that: (a) Her pathology did not extend beyond the neurotic range; (b) she was a highly creative individual. Thus, it was of interest to note that her Rorschach contained many responses involving blatant primary process thinking. While such responses would be taken ordinarily as indicating a thinking disorder and consequently severe pathology, in this case they were seen as reflecting "regression in the service of the ego." This led to a discussion of how this adaptive regression can be differentiated from pathological regression in psycho-diagnostic testing and to a consideration of some theoretical issues relating to primary process thinking.

In recent years, a number of clinical and experimental reports have appeared in the psychological literature dealing with "regression in the service of the ego." This concept, first introduced by Kris (1952), has been defined as "a partial, temporary, controlled lowering of the level of psychic functioning . . . (in which the ego permits) relatively free play to the primary process in order to accomplish its adaptive tasks." (Schafer, 1958, pp. 123-125).[2]

Since the heavy influence of the primary process is also a hallmark of schizophrenia, the question arises as to how in personality assessment, the clinician can differentiate adaptive regression from pathological regression. Theoretically, the answer of course, lies in the definition of the latter as "temporary, partial, and controlled;" but what does this refer to as far as psychological test data is concerned? Schafer (1958) and particularly Holt (1960) have suggested some general principles as to how this differentiation can be made. One purpose of the current paper is to illustrate, discuss, and in certain instances modify these principles through a presentation of psychodiagnostic and psychotherapy material on a single patient. A second purpose is to propose other ways of making this differentiation and to demonstrate how these were of value in appraising the same patient. Finally, various theoretical issues relating to primary process thinking will be discussed.

The core material is that of a 41 year old, white woman, H. T. She is a college graduate, married, and the mother of two sons, 12 and 8 years of age. At the time of testing, she was both functioning as a housewife and partaking professionally in musical activities on a part-time basis. She was in psychotherapy for a little over five

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[2] For a differentiation between the primary and secondary process, see Schafer (1958, pp 123-124). He has presented a detailed discussion of this difference both in terms of the general characteristics of the two processes, and the influence of each over such functions as thinking, memory, perception, motility, etc. In the current paper, the focus will be on the primary process as it affects the formal structure of thought. The formal characteristics of primary process thinking have been described as including "autistic logic instead of straight thinking, loose and nonsensical types of associative links, and distortion of reality in numerous ways" (Holt, 1956, pp. 15-16).

years and was referred to me for a psychodiagnostic evaluation at the beginning of treatment. Her therapy was conducted on a twice a week basis and was described by the psychologist who treated her, as psychoanalytically oriented. (The couch was used, free association and dream analysis were utilized to some extent, and the therapist was mainly passive and interpretative in his approach) . In what follows, no attempt has been made to present a complete case study. Instead, those aspects of the therapy material gathered over the five year period have been selected which bear on the question of whether it can be validly maintained that H. T. exemplifies regression in the service of the ego. In addition, a few other aspects of her background and psychology have been included to broaden the picture somewhat for the reader.

H. T.'s presenting problem was that of dissatisfaction with her relationship with her older son. She complained that she was insufficiently tolerant of his faults, particularly of what she described as his overdemanding behavior. She often became angry with him, even occasionally striking him. She reported that she felt guilty, both over this behavior and the fact that he had been a celiac baby. As secondary problems, she mentioned a tendency to overeat, (though she was not obese) and her dissatisfaction with her marital relationship. She described her husband as a distant man, who was so absorbed in his business and hobbies that he neglected his family.

H. T.'s therapist felt that the manifest difficulties described above (as well as noteworthy homosexual strivings which appeared often in her dreams) were primarily rooted in an "oral problem." As a child, her relationship with her mother had been overly stimulating and physically gratifying, (e.g., they slept in the same bed until H. T. was 18) , yet unsatisfying as far as her dependent needs were concerned. Thus, the mother was described as extremely ungiving, even when it came to providing food. The therapist's formulation was that H. T. interpreted both her son's early celiac condition and his later demanding behavior as indications that she was inadequate as a mother and, in fact, was like her own ungiving mother. H. T.'s overeating (which during therapy gave way to mild depressive episodes) and her reaction to her husband's neglect, were also seen as primarily a consequence of her unhappy oral experiences with her mother. The withdrawal of her husband was seen as particularly painful to H. T. since she had developed the fantasy early in life that her father, and by extension, men in general, would supply her with the oral gratifications that were not forthcoming from her mother. Thus, manifestations of an unconscious urge to incorporate the penis that were noted and a conscious wish to perform fellatio were understood by her therapist as mainly an outgrowth of her oral problem mediated by unconscious equations of penis with breast and semen with milk.

Even before entering treatment, H. T. functioned successfully in her musical activities. She composed music, served as pianist for a ballet group and gave piano concerts in her community. As therapy progressed, she expanded these activities, giving piano lessons and acting as accompanist for a children's puppet group. In performing for both ballet and puppet groups, she improvised the music that she played. She reported that during these improvisations, pleasant visual images would "pop" into her mind and these gave her pleasure and aided her in the improvisations. In all her musical activity, she was highly successful, with her services in demand in the community and her reputation that of a talented and creative artist.

As far as her behavior in treatment was concerned, H. T.'s therapist described her as a highly intelligent, contemplative, and sensitive woman who was an excellent patient. She was able to entertain disturbing thoughts in the service of therapy without becoming panicked by them and was much more apt to grapple with her problems than run from them. She seemed intrigued by interpretations that were offered her, achieved genuine insight, and used this insight in her daily living as well as in the therapy sessions. Her progress in treatment was characterized as "marked." In her relationship with her older son, angry feelings and the hostile interaction with him ceased, and he became a source of much pleasure to her. Her relationship with her husband also improved, though to a lesser extent, which the therapist believed was a function of the husband's pathology and limitations. At termination, H. T. reported that she felt more comfortable with people in general and that she had become more productive and efficient in her musical activities. A follow-up one year later indicated that these gains had been maintained.

Diagnostically, the therapist's opinion was that H. T.'s disturbance (at the beginning of therapy) should be termed a character neurosis of moderate severity with obsessive-compulsive features and mild depressive trends. In assessing her ego functioning, he felt that the pathology clearly did not extend beyond the neurotic range. Her thinking was described as logical and sound, her perceptions as reasonably accurate and her reality testing as firm. In her affective life, she was described as capable of a wide range of emotions, and although mood swings were noted, expressions of feeling were always sufficiently modulated. In her object relations and in her control over impulses, no serious disturbance was noted.

From the above clinical material it seems fair to state that no indication of a schizophrenic or pre-schizophrenic condition was in evidence. The fact that H. T. spent five years in psychotherapy, that was not primarily supportive but was aimed at penetrating her defenses enables one to draw such a conclusion with added confidence. Moreover, the evidence for creative functioning in her everyday life is as weighty as the evidence contradicting pathology beyond the neurotic range. Thus, from rather extensive clinical material, this woman can be said to fit the description of a creative, nonschizophrenic individual. What then do her psychological test protocols look like?

The battery of tests H. T. was given at the beginning of treatment included a Rorschach, W.A.I.S., object sorting test, word association, Bender-Gestalt and figure drawings. The main focus will be on the Rorschach protocol which follows:

I. 95″

Seems to be a nude woman—standing and facing man towering over her—her face is on the level of his navel—he's quite burly—he has hands raised over his head as if he's gonna pounce on her.

The wings don't seem to come into this at all—the flares out of side.

(Where is the woman's head?) The head is somewhere in here—where his navel would be (do you see his navel?)—there was a white something or other—and that was his navel [location is center D]

*Fabulized response

**Peculiar verbalization tendency

Key: * = Delta index score
** = Holt manual score

II. 155″

There are 2 bear-like creatures facing each other — they're smiling — they're dancing — they're doing the type of step that would be called sashaying—palms of hands are touching. One set of hands seem to be quite ordinary—and other set seem to be aflame—as if there was some deep understanding between them—Oh the palms of one set of hands are touching each other—and for set that are aflame, backs are touching each other. I can see one foot of each creature—as they step out while they're dancing.

(What makes them look like bears?) black—and hairy—gradations of black and grey in blot that suggests this (this part) the ear—it's pretty fantastic anyway [hands are top d and bottom in red—feet are top red. Thus, these are not the usual bears. About the feet being the top red, S commented while pointing them out: "It's a perspective as they dance."]

*Confabulation

**Concrete image symbolism; Inappropriate activity.

III. 120″

This one doesn't suggest anything. Aside from it being a blot. It seems to be quite straightforward.

Couple of female bird-like creatures facing each other—seem like they're being pulled away from each other by some strong wind or breeze. Trying to get close to each other but being held apart by a strong wind. Only one leg of each creature is visible—and is wearing a high-heel shoe. Each is carrying a muff or handbag — attached to wrist. Pretty funny looking birds—grotesque. The red blots don't look like anything.

(What makes it look like a muff?) Fuzzy outline that suggests fur—black fur

[usual people]

*Fabulized combination

**Arbitrary unlikely combination

IV. 60″

This is a monster [laughs] big—enormous—hairy-menacing kind of creature—with narrow eyes sort of leering. His arms are raised as if to pounce—but arms seem to be atrophied. He has tremendous thighs, legs and feet—and very small genitals — Underneath him — his thighs are spread apart—right under him is something that doesn't belong in picture—and I'm not sure what it is. It looks something like a head one might see in a museum —of a stuffed animal—expressionless head—eyes open — and 4 tusks protruding from mouth — I want to amend something — the stuffed head isn't expressionless. It looks kind of sad. One more thing. The monster has an Asiatic kind of countenance—like a caricature of a Chinese bandit—I don't want to be chauvinistic—but that's what it suggests.

(head?)

It looked as if it didn't belong between monster's legs—but it was sad—It may have been sad because of something monster did to it. [Monster is W, with the genitals—the light shaded area in top of bottom D. The head is the bottom D]

*Confabulation

V. 60″

Let's see—I don't have the whole picture in yet. There's a bat-like creature—with tremendous wings—which is screening—each wing is screening the nude body of a woman—I can see the head of one woman—and I can see her leg. Of the other woman I can only see other leg. The head of this bat partially obscures a couple of China figures—dolls. The figures are symetrical—facing each other—and each has elaborate hairdo.

[The women are on sides. The figurines are top center ds]

*Confabulation

**Inappropriate activity

VI. 135″

Well it's a combination of things—first it looks like a great rug made of an animal skin —spread out. Only where one would ordinarily expect a tail to be—there is a head. Holy smokes—there's a bird-like creature standing very straight. It's a woman—a female bird with wings outstretched. She has whiskers—the body of the bird is transparent—and you can see inside. A woman—standing straight. This female form has tremendously long legs—standing on tip-toes as if a ballet dancer. The expression on face of female bird is very serious—it's an old bird [laughs]. It has a cadaverous looking face—but the female face within old bird—is young and soft looking. Oh—it has a woman's— [breaks off]. It's not a bird but a bird-like creature. Maybe I ought to forget about bird. A big female creature with wide arms—or wings—and I see now this old female is standing with her legs far apart.—A strong stance—she has a very long torso—and garment she's wearing is tight fiitting up to hips—where it's full-skirted. There's too much in this one [laughs pleasantly]. You know what? [laughs] She has 4 legs—She's standing upright—wide stance—because she has 4 legs—2 on each side. Her dress flows way down to bottom of entire figure. This is only part of the story. There's also, in this, a man—a king—a patriarch let's say—I can see his profile—he's wearing a crown—has an aquiline nose—and chin that protrudes horizontally [laughs]. In one of these profiles he's looking out of corner of one eye rather roguishly—in other profile, he's looking straight ahead. Where the 2 heads are joined down the center—which is also part of the woman's flowing dress—she's on top of each of these kings. On the bottom are a man's testicles—but I don't see a penis. That's all.

[Female's body is inner black dr in top D and legs are lighter grey in middle of bottom 2/3. Kings' heads are side ds].

Terminal Testing

(Why female bird?)

First, head looked female—contours of head —seems to be hair the way a woman grows her hair.

*Confabulation

**Arbitrary unlikely combination; Internal-external view; Composition; Affective contradition.

VII. 30″

2 rather ugly creatures are facing each other —Each has a protrusion from back and top— let's see—Is it a she or a he? I can't tell. It has protrusions from back of head. These protrusions have—looks like nipples—but they're not —a series of small heads—one above the other —and they glare at each other. The—main creature—has one arm each—and a torso only up to waistline—that's all—they look as though they may be stone figures—but I don't think they are. Each of these torsos – is balanced on head of—a dog I would say—sitting crouched over

[dogs are bottom 1/3]

*Confabulation

**Composition; Arbitrary impossible combination

VIII. 45″

This one involves a series of figures that balance each other—and it's quite nightmarish in quality. First of all there's a face that looks like a skeleton—wearing a dark hat with a brim that goes way out to side. The color of hat is greyish-green in picture—but it looks black. The figure is wearing a cloak of some kind—On either side are a couple of rats— that are trying to climb up on this skeleton's shoulders—but the skeleton manages to keep the rodents off—with his shoulders—and brim of his hat.—Rodents in turn are balancing one back leg each on the shoulder of a soft bird—very soft. Each little bird more like fuzzy kind of baby bird—than adult bird— each has an appealing helpless quality—and each bird has the burden of supporting the rat.

(What makes it look like a bird?) The texture and the colors (what makes it look like a skeleton?) Contours of lines.

[Inquiry about the color of the hat]. But the hat is really black—not grey-green— [laughs]—since it's like a dream anyhow.

(What makes it look like rats?)
outline—and position too

*Confabulation

**Inappropriate activity; Arbitrary unlikely combination; Arbitrary impossible combination; Peculiar verbalization.

IX. 110″

Someone's drowning in this one—It's a man— he's at the bottom of this design—his legs are doubled up—legs are spread but knees are bent—It's in the position of a woman in childbirth—but it's a man anyways. He's in agony—he sure has troubles [laughs]—On top of his head—he's supporting the weight of the world [laughs]. I hope you'll let me out of here—[laughs] and with his hands he's supporting weight of creatures—monsters—I don't know what to call them. And on top of the globe of the world, there's a couple of grotesque creatures – leaning on their elbows – talking.

[Man's body is entire pink with the "buttocks" referred to in the middle when she was pointing out the percept. The head of the man is either in the upper center part of the pink or in the brownish green above that. The legs of the man are the usual heads on the side of the pink]. Maybe it's not as bad as he thinks—He thinks the world is resting on his head—but it isn't quite—[Response to probe justifies an additional color score].

*Confabulation

**Inappropriate activity; Arbitrary unlikely combination

X. 75″

Right down center of this figure—this design —is a male oriental figure—with great jowls —and a headdress of some kind—He has very small legs in cowboy's pants—shriveled looking legs. Now there are 2 figures facing each other—they're in front of him—These 2 figures of a nightmarish quality seem to have stretched between them—a woman's brassiere—and it looks like each one of them is sucking on a brassiere strap. Some other things just look like blots—the blue—2 delicate looking blots —that suggest dancing postures. The headdress of this oriental consists of a big pipe-like affair—and in front of the pipe—are a couple of little birds facing each other.

(Where might you see something like this?) I wouldn't see it anywhere—part of a nightmare—I don't recall having dreams of this [Oriental is inner white. Pipe is top gray]

*Confabulation

**Inappropriate activity

The first thing to be noted is the very high frequency of responses reflecting the formal aspects of primary process thinking, i.e., thinking that is loose, unrealistic, and illogical. In assessing H. T. for diagnostic purposes, my original impression was that the amount of such thinking in her Rorschach clearly exceeded that which I had gotten in the past from nonschizophrenics similar to this woman in age, education and subcultural group. It also appeared to far exceed the neurotic limits set by Rapaport (1946) who was the first to systematically describe Rorschach manifestations of primary process thought and who compared schizophrenic with non--schizophrenic protocols along this dimension.[3] In order to check these impressions for the current presentation, H. T.'s protocol was blindly scored according to two scoring systems that have been innovated for research purposes to assess primary process thought. One of these, the "delta index" introduced by Watkins and Stauffacher (1952), consists of a weighting of the different kinds of "deviant verbalization" designations originally outlined by Rapaport. The second is the more exhaustive "Manual for the scoring of primary process manifestations in Rorschach responses" introduced by Holt, (1960). The scores assigned are presented beneath the Rorschach responses. It can be seen that on nine of the ten cards, one or more primary process scores were assigned according to each scoring system. The totals obtained clearly place this record within the schizophrenic range, using as criteria the results from studies which have compared diagnostic groups according to one or the other of the scoring systems.[4]

A high frequency of Rorschach responses reflecting primary process thinking has been demonstrated to be a valid indicator of schizophrenia in a number of research studies. (See footnote 4). On what basis, then, could the psychodiagnostician distinguish H. T.'s excursions into this kind of thought from a schizophrenic's? The difference between adaptive and pathological regression has been touched upon by Schafer (1958) and treated more fully by Holt (1960). Holt has introduced a dimension into his primary process scoring system which is intended to provide for this differentiation and he refers to this as "defense effectiveness" (DE). This has been defined as the rating given to a primary process manifestation for the "effectiveness of controlling and defensive measures in reducing or preventing anxiety and making a successful adaptive response to the examiner's demand to interpret the blots" (1960, p. 63). Three sets of Rorschach variables bear on DE: (1) form level; (2) control categories; (3) affect accompaniment. Let us consider each of these in turn.

Form Level: The maintenance of good form perception for those responses in which primary process thought appears is considered as one indication that the thinking involves adaptive rather than pathological regression. Why should this be? If regression in thinking is "permissible" in the non-schizophrenic creative person, why isn't perceptual regression allowable as well?

To answer this question it will be necessary to first digress briefly to a discussion of the ego function of reality testing. Healthy reality testing has been defined as "the ability to arrive at a logical conclusion of objective nature from a series of observable or experienced phenomena" (Frosch, 1960, p. 545). Impairment of this function results in misperceptions and/or misconceptions regarding the external world or the self which cannot be ascribed to lack of knowledge and which carry conviction and cannot be modified by experience. Defined this way, reality testing is a variable that is conceptually independent of the dimension of primary-secondary process thought. That is, an individual can engage in illogical, loose, and/or unrealistic thinking but maintain recognition that such is the case.[5]

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[3] The discussion that follows will be limited to the effects of the primary process on the *formal* qualities of thinking and it is to be this that the term "primary process thought" will refer. The *content* aspects of primary process thought (i.e., its libidinal and aggressive character) will not be dealt with in the current paper.

[4] The delta index (delta score ÷ R) has been successful in differentiating both latent and manifest schizophrenics from neurotics and normals in at least two studies (Watkins and Stauffacher, 1952; Powers and Hamlin, 1955). The mean delta index for the schizophrenics was 18 in the first study and 25 in the second. H. T.'s index score was 34, thus being higher than both of these. The Holt manual score has successfully differentiated schizophrenics from severe neurotics and personality disorders in one study (Silverman, Lapkin and Rosenbaum, 1962). Here the comparable index (number of formal primary process scores ÷ R) for the schizophrenics was 74 which is identical to the index score for H.T. However, these comparisons must be viewed cautiously since: (1) H.T.'s protocol was not scored by the same psychologists who acted as judges in the experimental studies; (2) There were differences between H.T. and the experimental Ss in age I.Q., and education.

As it has been pointed out elsewhere (Frosch, 1960; Silverman, Lander, *et al.*, 1961) reality testing is the only ego function about which it can be said that a major impairment *necessarily* implies psychosis. It is true that for *most* individuals the degree of reality testing impairment is highly correlated with the amount of primary process dominance. However, this is not universally the case and the creative person is clearly one of the exceptions.[6]

This then, leads us back to the definition of adaptive regression given earlier in which such regression was described as "partial." This implies that certain ego functions are allowed to regress but not others, and among the latter would be reality testing. Since form level accuracy on the Rorschach, in large measure reflects the effectiveness of reality testing (Schafer 1958, p. 141 and Holt, 1960, p. 6), it is thus understandable why one should expect the emergence of primary process thinking from an individual who regresses adaptively, to be accompanied by accurate form perception.

As far as H. T.'s record is concerned, overall, her form accuracy is on a high level. For 15 of her 18 images, the match between blot and percept can be judged as at least reasonably close, a proportion that is clearly within non-schizophrenic limits.[7] The three exceptions which appear on cards II, VI, and IX are also worthy of comment since even they do not violate the stipulation that the adaptive use of primary process thinking is not accompanied by a breakdown in reality testing. For in each instance H. T. indicated that she *knew* that the fit between percept and blot was not an accurate one. Thus, on card II, the poor form element consisted of her description of the upper red area as "feet," but then she commented "it's a perspective as they dance." The figure of the woman on VI and the man on IX also involve a poor "fit," but in these instances too, she indicated that she recognized this. In the former, she referred to the disproportion of the legs to the rest of the body, calling the figure "a creature," and in the latter, she again implied that the human form was a distorted one. Her qualifications in each instance improved the "fit" only slightly, but her attempts to justify the incongruities indicate that even though she *disregarded* reality considerations, *reality testing* was maintained. Thus, the principle that a Rorschach response in which the percept bears little or no resemblance to the blot area reflects impaired reality testing, deserves modification. This only can be said to be valid when S gives no indication of recognizing the bad fit.

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[5] I am not referring here to schizophrenics who refuse to describe delusional ideas or hallucinations because others will consider them "crazy." In such persons, a major impairment in reality testing still exists. However, this cannot be said of persons who genuinely do not accept the validity of bizarre thoughts and unreal perceptions that they experience. (See the relevant discussion of Frosch (1960) who differentiates between the ego functions of "relationship to reality" and "sense of reality" on the one hand, and reality testing on the other.)

[6] Other exceptions include a particular kind of psychiatric syndrome described by Frosch (1960) and the state induced by prolonged sensory deprivation in individuals without psychiatrict disturbance. With regard to the latter, Goldberger and Holt (1958) have reported the appearance of certain kinds of ego disturbance, (e.g., depersonalization experiences, involuntary auditory and visual imagery, and impairment in secondary process thought), which are not accompanied by any impairment in reality testing.

[7] Schafer, for example, considers an F +% of 60 or above to be within non-schizophrenic limits (1950, p. 69).

Control Categories: Holt has listed a number of "controls" that can be utilized which make a primary process response more acceptable. These include sequential changes in which a primary process idea is followed by secondary process thinking; taking distance from the primary process idea by making it remote in time, place, person, or level of reality; presenting the primary process thought in a cultural, esthetic, humorous or intellectual context that provides some justification for its deviant elements; and delaying, criticizing, or introspecting about the primary process idea so that some of the "sting" is taken out of it.

In H. T's record, I could find only four instances in which controls of this sort were clearly and spontaneously instituted, and in three of these, they did not emerge until the inquiry: Card II, "it's pretty fantastic anyway;" Card IX, "I hope you'll let me out of here;" Card VIII, "since it's like a dream anyhow;" Card X, "part of a nightmare." (According to Holt's manual, the first two of these would be designated "criticisms" and the last two "fantasy context".) Considering all the primary process given, her recourse to such controls must be described as meager.

At first consideration, the absence of more controls may seem inconsistent with the formulation that H. T.'s primary process thinking is related to her creative proclivities. Creative productions, after all, are not unvarnished expressions of the primary process, but instead, manifestations that have been "worked over" by certain ego processes so that the end result is acceptable to an audience.[8]

This argument can be answered by first considering the reasons why persons who are characterized by adaptive regression in real-life situations produce many primary process responses on the Rorschach.[9] For some, part of the reason probably lies in the individual's perceiving the Rorschach situation as an opportunity to be creative. The responses of such a person thus can be seen as creative productions and the process generating them as a microcosm of the creative process about which Kris has written. This has both an "inspirational" and an "elaborational" stage which have been described as follows:

> "In the so-called inspirational phase of creativity, the artist is more or less immersed in relatively archaic content and archaic less stable moods of expression. That is to say, ego structures concerned with organized speech, perception, and movement which operate relatively automatically in higher stages of organization may lose their automatized quality and decompose, as it were, into simpler, cruder, and by now strange or startling elements . . . (The) elaborational phase is crucial to an adequate end result, which is to say that the regressive process is reversed and the yield of the regressive process is subjected to critical scrutiny, selection and synthesis. In the end, the regressive yield is shaped into a conceptually and affectively ordered statement or communication that effectively integrates both the experience and the intent of the artist or wit and the stringencies of the current reality to which he offers his product" (Schafer, 1958 pp 125-126).

Rorschach responses resulting from this creative process with its elaborational as well as inspirational phase, thus would be expected be be characterized by the controls that Holt has described. It seems likely that this is most apt to occur for Ss whose real-life creative activities involve modes of expression that are most similar to Rorschach "imaging," for example, painters and sculptors whose work involve the production of visual images.

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[8] Thus, for example, a response such as "a portrait of Medusa's head" with its quality of remoteness and its placement in a mythological context can be said to reflect "worked over" primary process, while a response of "a woman's head with snakes emerging from it" exemplifies the same primary process idea in unmodulated form. H.T.'s responses are much more like the latter example than the former.

[9] The relationship between adaptive regression and primary process responses in the Rorschach has been empirically demonstrated in studies by Stein & Meer (1954), Pine and Holt (1960), Hersch (1962), and McClelland (1962).

However, among the creative, it is not only the painters and sculptors who respond with an abundance of primary process on the Rorschach. For the others, it is less likely that the Rorschach situation will be used as an opportunity to be creative and their production of many primary process responses would have to be explained on other grounds. These would relate to a variety of characteristics of the Rorschach situation to which Holt (1954) and Goldberger (1961) have made reference. First, S is asked to produce visual images which according to psychoanalytic theory, is a preferred mode of expression for the primary process. Second, no connected and organized narrative is requested or usually given so that one of the "props" that helps maintain secondary process thought in most situations which require verbalization is absent. Third, the inkblots provide an external focus which reduces defensiveness. Fourth, the test stimuli, the inkblots are non-representational. This, in line with the formulations offered by Rapaport (1958) means that the amount of environmental "nutriment" available for the maintenance of secondary process thought is reduced. Finally, and most important of all, are the highly permissive test instructions. These encourage S to give personalized and private responses with no directive to be logical or to produce reality-bound contents. For the non-severely disturbed creative person, this last characteristic is crucial since it enables him both to "let himself go" and to verbalize the thoughts that come to mind without feeling that any environmental demand is being violated. It thus allows primary process ideas, which are relatively accessible to such a person to begin with and which have been further facilitated by the other characteristics of the Rorschach situation already mentioned, to reach fruition.

This route to the emergence of primary process on the Rorschach is not dependent on S's intention to offer a creative product. Thus, there is no adaptive need for the primary process material to be sifted through an "elaborational phase." From the standpoint of defensive needs also, elaborational controls may be superfluous. As Holt has written, "If someone is quite mature and unthreatened by primary process, he may feel no need to defend a response containing a good deal of it" (1960, p. 67). Thus, the absence of many control categories need not be considered inconsistent with the claim that H. T.'s performance exemplifies adaptive regression.

Affect Accompaniment: The final criterion that Holt offers as differentiating adaptive from pathological regression is the nature of the affect. He considers affective manifestations of pleasure as pointing in the former direction and manifestations of threat as pointing in the latter. From my observations of H.T.'s affective tone during the Rorschach, both kinds of emotion were in evidence. Her mood was loose, free and jovial at certain times, but apprehensive and uneasy at others. How can this be understood?

One possibility is that the positive and negative affects were reactions to different things. The former could have reflected the experience of pleasure that is supposed to accompany adaptive excursions into primary process thinking while the latter could have been stirred by the symbolic meaning that the content of some of her images had for her. A second possibility is that both kinds of emotional reactions *were* in response to the primary process quality of her thinking, but that the expectation that adaptive regression will be accompanied by *only* positive affect is unwarranted. This possibility has been recently suggested elsewhere (D. Silverman, 1963) and has been based on both the self-reports of a number of well known creative artists and experimental findings in which certain Ss performed creatively, while manifesting notable anxiety.

Other Differentiators of Adaptive and Pathological Regression: In this section, I shall illustrate through a further discussion of H. T.'s test record, two other ways in which the psychodiagnostician can differentiate adaptive from pathological regression. The first involves a comparison of responses to the tests in the battery that are relatively non-projective with the Rorschach performance. In H. T.'s case, the former were represented by the Rapaport (1946) modification of the object sorting test (O.S.T.) and the Wechsler Adult Intelligence Scale (W.A.I.S.). In these tests, a secondary process mode of thinking is at least implicitly demanded. Thus, unlike the Rorschach, if one's performance is characterized by primary process dominance, pathology is *necessarily* implicated.[10] Such was clearly *not* the case with H. T. On both the O.S.T. and W.A.I.S., her performances were diagnostically "clean" in all respects including the fact that there were no noteworthy manifestations of primary process thinking. This, then, was in marked contrast to the primary process dominance in the Rorschach and points to the latter resulting from the special characteristics of the Rorschach situation mentioned earlier.

One might object to this conclusion by calling attention to those instances in which patients are able to conceal a thought disorder on the O.S.T. and W.A.I.S. which is then exposed during the Rorschach, (a finding which is usually ascribed to differences in degree of stimulus structure and in the set induced in the testee for the two types of tasks). It could be validly held that such a constellation is not infrequently found in pre-schizophrenia and paranoid schizophrenia, conditions in which pathological thinking can be contained. But in these cases, one would expect neither as many rich responses in the Rorschach as there was in H. T.'s protocol nor as much primary process. The very qualities that make it possible for patients with these disturbances to give reasonably clean performances on the O.S.T. and W.A.I.S. (i.e. the guardedness of the paranoid schizophrenic and the desperate clinging to reality of the pre-schizophrenic) should limit both general responsiveness and the amount of primary process on the Rorschach. Or to state this argument a little differently, if a person is the victim rather than the master of his primary process thinking, and if his controls are so poor that he cannot contain himself on the Rorschach, then one would anticipate at least a few signs of thought disturbance in the W.A.I.S. and O.S.T. Thus, in differential diagnosis, one can conclude that a constellation of pathology-free performances on the more structured tests and *marked* primary process thinking in a *non-constricted* Rorschach points toward the regression being in the service of the ego.[11]

The last method that shall be proposed for differentiating adaptive from pathological regression involves a special procedure that was undertaken with H. T. after the standard Rorschach had been administered. Its purpose was to determine if primary process thinking in the Rorschach could be abandoned when the test instructions were made more structured and less permissive so that adaptational demands called for a more secondary process performance. The following instructions were given to H. T.: "The responses that you just gave were highly imaginative. I would like you to look at the cards again, but this time don't be so fanciful. Instead, give the kind of responses one might give to this test if one didn't have such a vivid imagination."

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[10] An almost identical formulation has been arrived at independently by Schafer (1958).

[11] From the above discussion, one good reason why a psychodiagnostic evaluation should involve a *battery* of tests of *varying* kinds is evident. (See Rapaport, 1945, for other advantages served by such a battery.)

The following protocol was then produced:

I. 35″ It's much harder just to look for things.
55″ This looks like a tremendous bird with its wings spread—seems to have a very straight backbone—and antlers. Wings are spread. (Try to find two things) You mean it might suggest something else? It looks like a map—with tiny little islands (you could just take *part* of blot) [long pause] mountains maybe—would be topographical map—contours

II. 2″ This looks like butterfly with its wings spread out. It has feelers—and a sort of white triangular body in center—Considering it otherwise I see on top things that were feelers where butterfly was concerned—are now hands with mittens on them—Not literally like hands, but with stretch of imagination [Top Red.]. And red design on bottom of blot suggests bagpipes in a way—also candy canes. These things [black] look like Teddy Bears.

III. The red part in middle looks like a pelvis. The 2 figures are still what I saw them as—The whole thing has the feeling of going around in merry-go-round—and 2 red blots at end look like a piece of meat at butcher shop hanging up on a hook [color used].

IV. Looks like a bear rug [long pause]

V. Looks like a bird with wing spread—has feelers coming out of head (Anything else?) outline like profile of man's face—brow—nose, and mouth. On other hand, these same outlines look like what a trail would look like when you climb a mountain—looks like lots of rocks to hop over [outline on top].

VI. Everything looks like a rug — Indian type rug — American Indian—with formalized design [W] —Oh it looks like a little totem pole. [top D]

VII. These look like rocks balancing on each other—Also a sort of necklace sort of.

VIII. I still see rats and skeleton inside —Gee, I can't see anything—with that blasted skeleton staring me in the face.

IX. Looks like a fountain.

X. I see a lot of dissociated things. Reindeer — couple of beautiful flower buds [yellow]—A frog leaping [top green]—and this looks like water splashing [side blue].

It can be seen that the amount of primary process thinking was very sharply reduced. This change is particularly impressive in that over 20 new responses were given. Thus, a further indication that primary process thought in the Rorschach has adaptive, rather than pathological implications, lies in the individual's ability to curtail such thinking when adaptive requirements demand it and when this is not at the expense of a reduction in productivity.

While H. T.'s retest performance contains notably less primary process manifestations, a few still appear. Thus, on I, she describes "a bird with a very straight backbone," which suggests a possible internal-external confusion. Also, for the same percept she inappropriately refers to "antlers" on the bird. Similarly, she describes the bird on V as having "feelers." On VIII, she makes the personalized and somewhat paranoid comment about "that blasted skeleton staring me in the face." One might wonder why she gave *any* primary process responses when the reality demands encouraged a secondary process performance. However, this only poses a problem if one assumes that pathological manifestations of primary process occur in the Rorschachs of *only* schizophrenics. But neurotic pathology also will lead to the emergence of these kinds of responses, though to a much lesser extent than in schizophrenics.[12] Since

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[12] This statement is supported by at least two experimental studies (Watkins & Stauffacher, 1952 and Powers & Hamlin, 1955). In them, primary process Rorschach scores not only were able to differentiate schizophrenics from both neurotics and nonpsychiatric cases, but significantly differentiated the latter two groups from each other.

H. T.'s therapist classified her as "neurotic," four primary process responses (none of which would be classified as "severe") should not be considered surprising, even if they cannot be ascribed to adaptive regression.

One further point can be made. It may have been that the primary process excursions on the first Rorschach produced too great a momentum of regressive thoughts for them to be completely and suddenly abandoned. As with a faucet that is first allowed to flow freely and is then turned off, a few drops of primary process may leak out even when the individual who engages in adaptive regression "wills" otherwise. The fact that two of the four primary process manifestations in the retest occurred on card I, i.e., at a point in time that was most contiguous with the standard Rorschach, strengthens the likelihood that this is what occurred. Thus, as Bellak, (1958) has suggested, a creative individual may be subject to a kind of occupational hazard; regressive thinking which is initiated to further adaptive goals, may result, at times, in mildly pathological expressions. This, in turn, would mean that adaptive and pathological regression are not always entirely discrete, and mutually exclusive processes. Elements of both can co-exist or, as seemed to be the case with H. T., one can shade into the other.

SUMMARY

A case has been presented of a 41 year old woman who was highly talented in the field of music as composer, improvisor, and pianist. She spent five years in psychoanalytically-oriented psychotherapy. The extensive clinical material that was thereby obtained pointed to a diagnosis of character neurosis, and unequivocally contraindicated the presence of a schizophrenic or preschizophrenic condition. Thus, it was of interest to note that her Rorschach performance contained a large number of responses reflecting the formal aspects of primary process thinking, the amount and severity of which ordinarily would be taken as indicating a schizophrenic disorder. In her case, however, these responses were seen as reflecting "regression in the service of the ego," the psychological process described by Kris as characterizing the creative person. Her test protocols were studied and discussed with the focus being on a comparison of adaptive and pathological regression. The following conclusions were drawn:

(1) In adaptive regression, there is no breakdown in reality testing. Thus, the Rorschach responses that express primary process thinking either should reflect a close match between blot and percept, or if the form level is poor, S should indicate an awareness that such is the case.

(2) If the emergence of primary process is accompanied by expressions of pleasure, this strongly suggests that the regression is in the service of the ego. However, the appearance of negative affect does not necessarily contra-indicate adaptive regression.

(3) If the creative activity that the individual engages in involves the production of visual images, the Rorschach task, which requires the same mode of expression, may evoke in microcosmic form, the entire creative process. The responses then produced should contain modulated and socialized expressions of primary process. On the other hand, if this parallel does not exist, the primary process is less apt to be sifted by control processes and may therefore emerge in relatively blatant form.

(4) A primary process dominated Rorschach which reflects adaptive regression should be accompanied by performances on the more "objective" tests that are relatively free of primary process influence and are diagnostically "clean" in other respects as well. While such a constellation may also be found in preschizophrenia or paranoid schizophrenia, the Rorschachs in these latter conditions can be expected

to be notably constricted in terms of both the number and richness of the responses given. This should not happen in adaptive regression.

(5) In schizophrenia, the individual has little control over his proclivity toward primary process thought. Thus, if the Rorschach task is restructured so that S is explicitly encouraged to produce a secondary process performance, the schizophrenic can be expected either to fall sway to primary process thinking anyway, or markedly limit his responsiveness to avoid this. In adaptive regression, on the other hand, a non-constricted secondary process performance is to be anticipated. However, this does not mean that primary process responses will be entirely absent. Since neurosis sometimes facilitates a lesser emergence of primary process and since adaptive regression may stimulate a touch of pathological regression, a small number of such responses may still appear.

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Effects of Changes in Instructions and Pictorial Variations on Story-telling Performance of Paranoid Schizophrenics

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Summary: The purpose of this study was to investigate the effects of variations in instructions and pictorial stimuli on the story-telling performance of paranoid schizophrenic patients to TAT-like cards dealing with the dimensions of sex and hostility.

Twelve TAT-like pictures, six depicting sexual scenes and six representing hostile content were administered to 68 paranoid schizophrenics. One group of 34 Ss was instructed to tell stories in the first-person, while a different group of 34 Ss told stories in the third-person. Two criterion measures were examined; initial reaction time and total number of words.

Initial reaction time was significantly slower under first-person instructions, but only for the hostile pictures.

Initial reaction time was shortest for the moderately sexual pictures and verbal output was greatest for the least sexual pictures.

For the hostile pictures, neither the main effect of instructions nor the degree of hostility significantly affected any of the criterion measures.

In a previous study with college students (Solkoff, 1959) an attempt was made to investigate the effects of instructional set and pictorial stimuli differing in both content and degree of intensity on certain formal measures of TAT performance. It was found that initial reaction time was significantly increased under first-person instructions, but only for pictures depicting hostility. Verbal output was consistently, though not significantly, reduced under first person instructions. In addition, verbal output was greatest for the least sexual pictures, but was also greatest for the most hostile ones. Although initial reaction time was not significantly affected by variations in pictorial stimuli, a trend suggested that speed of initial response was quickest to the moderately sexual pictures.

The present experiment is a replication of the previous work, with a completely different sample of *Ss*. It is hoped that data can be obtained on how the paranoid schizophrenic responds to varying intensities of sexual and hostile pictures in relation to either first or third-person instructional set. Two formal measures of TAT performance were analyzed: initial reaction time and total number of words.

PROCEDURE

Subjects. The *Ss* were 68 male paranoid schizophrenics, 32 of whom were hospitalized for six months or more at the Milwaukee County Hospital for Mental Diseases and 36 were patients at the Buffalo Veterans Administration Hospital. Their mean age was 38.30 (SD=6.99) and mean number of years of education was 11.23 (SD=2.85). No patient suspected of neurological disorder was used.

METHOD

On the basis of judges' ratings, six pictures designed to elicit responses relating to sexuality were selected. Two were rated as most sexual, two as moderately sexual and two least sexual. Six pictures relating to hostility were similarly selected. Details of the rating procedure are included in the previous study (Solkoff, 1959).

The 68 *Ss* were randomly assigned to one of two groups. Thirty-four *Ss* were instructed to tell stories to the

TAT-like cards in the first-person; i.e., to identify with one of the stimulus figures and to tell the story as though it was happening to *S* himself. The other half was required to respond in the third-person and the instructions were identical to those used with the TAT. The 12 pictorial stimuli were presented to each *S* in randomized order and each story was tape-recorded and subsequently transcribed.

Statistical Analysis of the Data. Separate Lindquist Type I analyses of variance were carried out for each of the criterion measures, within the sexuality and hostility dimensions, yielding a total of four analyses. In this design, all *Ss* experienced each B-treatment (gradations from most to least of either sexuality or hostility). Each B-treatment in combination with any one A-treatment (different instructions) was administered to a different group of *Ss*.

In the statistical analyses, the two cards depicting each degree of sexuality and hostility were combined and treated as a unit. Thus, the two cards depicting the greatest degree of sexuality (or hostility) were combined, with the same procedure followed for the two moderately sexual (or hostile) and the two least sexual (or hostile) pictures.

RESULTS

Instructions. Initial reaction time was significantly slower ($F=4.14$, $p<.05$) under first-person instructions,, but only for the hostile pictures. The instructions variable produced no significant changes in verbal outputs.

Pictorial Stimuli. Next studied were the effects of picture content on *S*'s responses. As can be seen from Table I, the main effect of degree of sexuality was significant for both initial reaction time ($p<.01$) and verbal output ($p<.01$).

Further analyses of the differences in individual pairs of treatment means yielded the following results: Initial reaction time was significantly faster to the moderately sexual than to either the most ($t=2.85$, $p<.05$) or least ($t=4.91$, $p<.01$) sexual pictures. Total number of words was significantly greater for the least sexual pictures than for either the strong ($t=25.39$, $p<.01$) or moderately ($t=31.57$, $p<.01$) sexual pictorial stimuli.

As regards the hostile pictures, the intensity variable did not affect either of the criterion measures.

DISCUSSION

In the present study, first-person instructions resulted in a significant increase in initial reaction time, but only for those pictures depicting hostility. This result is identical to that obtained with a group of college students. It is plausible to assume then, that both the patients and students had greater initial difficulty in identifying with figures engaged in hostile acts. In support of this assumption it may be noted that many of the patients had considerable difficulty maintaining a first-person identification throughout their story telling behavior, as indicated by their frequent vascillation between first and third person. Although the instructional variable did not significantly affect initial reaction time to the sexual pictures, there was a trend to slower reaction times under first-person in-

TABLE I—Means, and SD's of Criterion Measures and F values as a Function of Degree of Sexuality

	Most		*Moderate*		*Least*		
	M	SD	M	SD	M	SD	F*
Initial Reaction Time	20.16	13.67	17.31	15.45	22.22	17.06	5.37
Total Number of Words	117.46	77.64	111.28	78.61	142.85	92.89	15.33

*df = 2,132

$F_{.05}$ (df 2,132) = 2.99
$F_{.01}$ (df 2,132) = 4.60

structions. It seems then, that initial reaction time might be a fairly reliable indicator of the inhibition produced when *S*s are required to attribute undesirable motives to themselves.

So far as pictorial variations were concerned, only the sex pictures produced significant changes in the criterion measures. The absence of any effects of the hostile pictures is difficult to explain, especially in view of the assumed dynamics of paranoid schizophrenic functioning. However, a valid comparison between the areas of sex and hostility is not possible in this study since the pictorial stimuli constituting each dimension were not equated for intensity. Subsequent studies comparing differential responding to sexual and hostile stimuli would need to carefully match all pictures on factors considered to be related to story-telling behavior.

Finally, it is interesting to note the consistencies in performance between the student and patient samples. In both groups, the longest stories were told to the least sexual pictures. Verbal productivity may then be a fairly sensitive measure of response inhibition and should be studied more systematically over a wide variety of pictorial situations. In addition, the findings of the present study in respect to initial reaction time, corroborate the trend noted in the previous study, i.e., initial reaction time was shortest to the moderately sexual pictures. It seems possible that there might be an optimal level of sexual stimulation via pictures which will increase the speed of one's response to that picture.

To obtain a more complete picture of the patients' performance additional analyses of a number of content variables are presently underway.

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BOOK REVIEWS

French, Thomas M. and Fromm, Erika, *Dream interpretation, A new approach,* New York: Basic Books, 1964, 224 pp., $5.50.

The primary purpose of this book is to suggest a specific, working approach to the interpretation of dreams as part of the process of individual psychotherapy. More specifically, theory and therapy framework are Freudian. There are some disagreements with Freud — some interesting criticisms of the concept of "primary process" thinking for example — but these are in the nature of arguments within the family, rather than between those who hold different basic loyalties. The book's secondary purpose is to elaborate the theoretical underpinnings and implications of the authors' approach to the interpretation of dreams.

The chief general assumption here, as in any interpretive approach, is that dreams do make sense; that they do have a significant, potentially translatable, meaning or meanings. The authors' key assumptions beyond that are:

1. All the different meanings of a dream which can be found must fit together intelligibly.
2. The dream, with its coordinated meanings, must relate intelligibly to the dreamer's current real-life situation.
3. Every dream is a struggle to solve a "practical problem" — which in this context means finding a way to permit some sort of indirect or disguised wish fulfillment while acceding to the superego's demands for censorship. The dreamer's problem is "to find a way of reconciling a disturbing wish with the reactive motive to which it has given rise" (p. 93).
4. The dream work — that is, the problem-solving activity — can be viewed as a series of substitutions of one problem for another. Each substitution moves further away, in a hierarchical order, from the original "focal conflict". This concept of a focal conflict has been expanded in other works by French; it is defined here as "the conflict which is the most intensely cathected of all the dream's overdetermined meanings" (p. 45).
5. Every substitution and "condensation" in the dream is intelligibly motivated. "Condensation" is used in the Freudian sense, where two or more original concepts are represented in the dream by a single symbol.

The first step in dream interpretation is the direct, intuitive "guess" as to the significance of all or part of the patient's dream. The authors seem to be directing their book to therapists who both begin and end with this intuitive step. They urge that the dream interpreter go beyond it, by checking these intuitive hypotheses. The checking process uses the assumptions listed above; the focal conflict is identified and the other dream material related to it until all the material is seen as part of a total picture, a total Gestalt. If the original assumptions were correct and the checking procedure successful, the interpreter should be able to both understand the meaning of the dream and be able to reconstruct the pattern of substitutions and condensations which went into the dream work.

The confined space of a book review has necessitated giving an incomplete picture of this interpretive approach, but it should be clear that the "checking" process is essentially a test of internal consistency of the interpretation. It is a way of asking how completely it encompasses and relates all the data at hand — not how it relates to data gathered and evaluated independent of the activity of the interpreter. It is not what the statistically-minded would call a validating procedure, but more like a kind of intuitive split-half reliability check. Throughout the book the authors use such terms as "objective", "operational method", "systematic critical evaluation", and so forth: terms familiar to the experimental scientist, but used in a different way here. This difference needs to be noted at the outset of reading the book in order to avoid disappointment and/or irritation on the part of research-oriented readers. Those who set their art and their science distinctly apart are going to be taken aback by sentences such as "An objective, critical approach to interpretation is an art that must be learned" (p. 26).

Four dreams from a patient are analysed in terms of the author's principles. The initial presentation of the dreams needs to be read carefully, as they are referred to throughout the book. The contributions to dream theory in the volume are also discussed in terms of these four dreams. The authors note that this is but a small sample of the many dreams they have interpreted.

Although the focus throughout the book is on dreams, the authors' approach and conceptual framework have been used elsewhere for other interpretive problems. A recent work on group psychotherapy (Whitaker & Morton, 1964) uses the concept of "focal conflict" as the basis of its theory of therapy. Of particular interest to readers of this journal, Fromm has considered the relationship between this method of dream interpretation and the interpretation of projective test responses (Fromm, 1958).

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Kaplan, Bert (Ed.) *The Inner World of Mental Illness.* New York: Harper & Row, 1964, pp. 467.

In recent years discussion of the self and of inner experience has again become somewhat respectable in academic and scientific centers. Still, there remains in many places suspicion if not scorn of experimental data that cannot be calibrated by instruments. As a result, the editor of this book believes that therapists and researchers continue to undervalue the experiences of their patients and subjects because of their implicit assumption that only they, and not the patient, really understand what is going on. The upshot is that the patient is labeled as having a disease, and therapy is devoted to curing the illness as one would cure a dislocated shoulder.

The editor presents an opposing view of psychopathology. He asserts that the patients' experiences are not mere distortions to be manipulated and adjusted, but that they have intrinsic meaning and value in their own right. In addition, he prefers to speak not of illness or disease (the traditional medical concepts that Thomas Szasz and others have long criticized as being essentially inapplicable to psychiatry), but to view mental aberrations as actions with a purpose, though these purposes be masked from others. The author also notes that certain mental states are regarded as bad primarily because they are in opposition to the conventional norms of our society. For the therapist, then, the editor's point is that any reasonable approach to aiding a disturbed person must consider that his symptoms may also have a functional value, that of "negating a form of existence that the person has decided not to live with any longer."

Accordingly, the author has brought together an arresting and gripping compendium of 31 first-person accounts of different emotional states, ranging from psychosis, mania, depression and despair to the experience of acute pain and drug-induced states. There are key excerpts from such well-known books as Sechehaye's *Autobiography of a Schizophrenic Girl*, Beers' *A Mind That Found Itself*, and Schreber's *Memoirs of My Nervous Illness*, as well as a penetrating description of acute pain by Fredric Wertham. Reports by such literary figures as Dostoevsky, Tolstoi and Sartre are included, together with a caustic account of institutional care by the avante-garde writer Seymore Krim, who highlights the editor's point of view in observing: "Contemporary men and women—especially intellectuals – tremblingly judge themselves and others in the black light of psychopathology and shrink human nature to the size of their own fears instead of giving it the liberty of their greatest dreams."

The needs, pleas and insights of the patients are expressed lucidly in one account after the other, offering fresh reminders and new awareness to the clinician. Thus, one young woman noted in regard to her therapist: "At the start, I didn't listen to what you said most of the time, but I watched like a hawk for your expression and the sound of your voice. After the interview I would add all this up to see if it seemed to show love. The words were nothing compared to the feelings you showed." A college professor, reporting his fears during a state of acute anxiety, declared: "I am in as fierce a panic of isolation from help . . . as a man overboard in mid-Atlantic or on a window ledge far up in a sky-scraper with flames lapping his shoulders." The awesome struggle between ego and the demonic forces of the unconscious is laid out in page after page.

The major weakness of this collection is in the editor's inadequate introduction. He sweeps across such central topics as phenomenology, intentionality and responsibility without adequate definition or elaboration. He glosses over the entire range of existential thinking, but pays no attention to concepts that are fundamental to more fully grasping and utilizing the contents of this book. For example, he speaks of the neurotic's revolt, but ignores the vast problem of guilt that arises in this stand against authority. The critical issues of existential dread, of will and decision, and such concepts as centeredness and affirmation are barely touched upon. Although the editor speaks implicitly from within such a conceptual framework and directs much of his attention to the therapist, he does not relate phenomenological methodology and ontological conceptions to the actual process of therapy. Of course, this is material for a separate book, and it is not reasonable to expect a comprehensive treatment of the subject matter in a brief six-page introduction. The problem arises, however, in that too much is attempted in too brief a space so that the reader may come away with a reaction of superficiality.

Over-all, however, the editor has fully achieved his objective of conveying vividly the inner life of the emotionally disturbed individual by means of this superb gathering of first-hand accounts.

BERNARD LANDIS
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L'Abate, Luciano, *Principles of Clinical Psychology*, New York: Grune & Stratton, 1964, xx, 317 pp. $8.75.

This is an exciting, stimulating, and often quite irritating book. The irritation, however, is quite intended by the author who explicitly poses some of his issues in a simplified, dichotomous form in an attempt to provoke the reader into re-thinking or re-evaluating his own position. In truth, the book seems to have three rather distinct sections, each relatively independent of the others. The first is quite an open and frank discussion of the difficulties with which the profession of Clinical Psychology is confronted, in terms of role, practice, and of training. Second, the book includes a systematic, well organized and documented system of personality as it pertains to the clinician; lastly, principles of assessment, testing, clinical inference, and report writing are presented. The review will also follow this structure.

Rarely has this reviewer seen the professional problems of Clinical Psychology dealt with as openly as in this book. Dr. L'Abate freely admits that "this book is written from the viewpoint of a practicing diagnostician who still believes that psychodiagnostics remain the rightful province of professional contribution in clinical psychology", and then raises the problems of the profession, suggesting solutions for them. He candidly states that "the shibboleth of research has reached ridiculous proportions in psychology" wherein "the majority of psychology graduate students aspire to become clinical psychologists (and) the majority of their teachers are not trained as clinical psychologists nor do they have the slightest idea about the kind of problems that their students will face in practice". The solution suggested includes increased professional specialization, a predominantly scientific predoctoral program, and professional postdoctoral internships of at least two years. Any reader interested in the professional role of the Clinical Psychologist and the general direction in which the profession is going will benefit from reading this part of the book.

To summarize adequately the second general group of chapters would be almost impossible in the space limited to a review. Dr. L'Abate presents a metasystem of personality in a logical, generally quite consistent manner, citing an impressive array of supportive evidence. The author himself attempts to summarize this wealth of material by stating that "essentially, one needs to assume levels of personality along given continua that are defined by (additional variables) concerning space, time, and organization in personality". The evidence supporting the importance of each of these five variables (levels in personality, various continua of personality, and variations in space, time, and organization) are discussed and annotated, each in a separate chapter. If the first section of the book presents the author as a professional critic and reformer, this portion of his work presents him as a systematic theory builder. The heuristic value of these chapters appears to be marked; graduate students (and their mentors) will find a wealth of research ideas and suggestions.

The third distinct portion of the book, as this reviewer views it, consists of a discussion of criteria for use in applications within Clinical Psychology and of discussions and examples of testing procedures and report writing. The author makes quite a useful distinction between the criteria used by Psychology as a science (validity, reliability, etc.) and those used by Psychology as a profession (usefulness and consistency being the two he discusses). The description of the milieu of psychological testing, the selection of tests, and their ordering within the battery will be quite useful to the graduate student learning testing procedures, as will be the section relating to report writing. The format of the book is quite helpful to the reader, each chapter being preceded by a rather detailed summary in outline form of the content therein. Following each chapter is quite an extensive and useful list of references. The prose style is easy and nonpedantic.

The major criticism the reviewer has with the book has to do with its lack of general scope. The title is somewhat misleading as one would expect a comprehensive "Principles of Clinical Psychology" to include more relating to the practice of psychotherapy than one short chapter (of thirteen pages). This omission, while understandable from the above-mentioned psychodiagnostic bias of the author, is somewhat disappointing to those of us in the profession whose interests are more catholic. The intended provocative nature of at least portions of the book and the rather unique structure upon which the author hangs his discussion of personality leads to a number of minor criticisms. In the final analysis, however, most of these criticisms seem to the reviewer to relate more to differences of opinion and of emphasis rather than of fact. Realizing the above mentioned limitations in scope, this is a stimulating book, well worth the reading.

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Levine, Murray and Spivack, George. *The Rorschach Index of Repressive Style*. Springfield, Illinois: Charles C. Thomas, 1964, Pp. v+1964. $7.50.

The *Rorschach Index of Repressive Style* (RIRS) is a method of analyzing verbal behavior in Rorschach responses to estimate the degree to which it reflects vague, impersonal, and unelaborated thinking, lacking in integration and flow of ideas.

The authors cite theoretical and experimental justification for focusing on verbal behavior as a means of studying repressive trends. Primarily they rely upon arguments that repression is manifested, at least in part, by a failure of appropriate labels to appear in consciousness. It is expected that subjects with a greater availability of words for emotions, motives, memories, and fantasies will more adequately label and categorize stimulating circumstances.

A total Rorschach record is accepted as a reasonably extensive sample of the verbal behavior of a subject, because it involves the processes of perception, association, flow of ideas, images, and verbal communication by which the subject relates the relatively uncertain figures presented in the blots to much more familiar figures stored in his memory.

Each response made during the free association period is scored for specificity, elaboration, impulse response, primary process thinking, self reference, movement, and organization. The RIRS score is the total number of scores in the record divided by the total number of responses.

One of the twelve chapters in the monograph constitutes the scoring manual. Scorer reliability is reported to range from .95 to .98 on 51 records in four studies using different types of raw data (individual records, group records, and different ink-blots). All scoring was done by the authors or interns and a research assistant whom they had trained. There is no reason to doubt the statement that "careful detailing of the properties of responses to which clinicians are sensitive can result in the necessary objectivity and communicability." It would have been desirable, however, to have independent judges not trained by the authors apply the directions before concluding that the scoring system as given in the manual insures adequate reliability.

The RIRS correlates with intelligence measures at about the same level as the Rorschach M. Correlations of the RIRS with intelligence measures are higher in females than in males, but the opposite holds true for the RIRS and achievement test scores. The authors emphasize that sex differences in the interpretation of the RIRS may not be disregarded. They include a good review of investigations using other techniques which demonstrate the need to study test patterns of the sexes separately.

Test-retest reliability of the RIRS has been studied in over 2000 Rorschach protocols from over 350 subjects. The records were taken under a wide variety of conditions using varying forms of the test, involving varying time periods, and covering several different populations. Correlations between testings are significant when conditions of reexamination are constant. The RIRS is sensitive to changed conditions of examination, but the score does not shift for trivial reasons and relative rank order of Ss remains reasonably constant.

To estimate clinical validity, the RIRS was studied within a normative frame of reference in clinical populations and in different clinical situations.

Results of reliability and validity studies warrant the conclusion that the RIRS reflects an early-evolved stylistic property of language (and presumably thought) which is relatively stable over long periods of time, that it differentiates between various clinical groups, and that shifts may occur in relation to changes in clinical status.

The RIRS is a promising attempt to tie behavior manifested in the Rorschach to the general psychological theory of verbal mediation. It warrants further investigation.

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Wolpe, Joseph, Salter, Andrew and Reyna, Leo J. *The Conditioning Therapies: The Challenge in Psychotherapy*. New York: Holt, Rinehart and Winston, 1964.

This book is one more in a series of recent publications presenting the behaviorist approach to psychotherapy. It includes little that has not already been presented in a number of other publications such as the 1960 collection edited by Eysenck or the two reviews that have appeared in the Psychological Bulletin, (Bandura, 1961; Grossberg, 1964). Since the basic arguments and much of the evidence used by behavior therapy advocates are constant throughout a number of these publications, the present review will attempt a general analysis of their position.

First, two variants of behavior therapy should be distinguished: the operant conditioning (or Skinnerian, or instrumental conditioning) approach as represented by Bachrach's contribution to the present volume, and the Wolpe-Eysenck approach, which is more closely tied to classical conditioning and Hull's learning theory. The operant work tends to be technique oriented, consisting primarily of the application of the operant conditioning techniques developed on work with animals by B. F. Skinner and others to the behavior of disturbed children and hospitalized psychotics. Following Skinner, these workers eschew theoretical formulations — they put forth no special theory of neurosis, for example—but have focused primarily on manipulating discrete aspects of behavior in more or less restricted situations. No distinctions are made between kinds of behavior or different types of learning (i.e., molar-molecular, primary-secondary, critical stage, etc.). Their one general principle might best be stated as, "behavior is maintained by its (immediate) effects," which leads them to manipulate "behavior" by altering the consequences that follow it, e.g., by introducing reinforcements, taking away others, etc.

The Wolpe-Eysenck approach consists, first, of a group of techniques such as "aversion therapy," "desensitization," and "extinction"; second, of a set of "learning principles" and, third, of a special theory of neuroses (principally phobias) in terms of these "learning principles." I will take up these latter points shortly—let me here give a picture of what desensitization, a typical behavior therapy technique, is like. Desensitization begins with the patient and therapist together constructing a ranked list of fear-provoking situations. The patient is then given instructions in progressive relaxation, frequently under hypnosis. In this state he "visualizes" and reports to the therapist the fear situations, working his way up the list from least to most fear-provoking. In addition, the case reports of Wolpe and others clearly indicate that behavior therapy is not limited to these activities and that the patient and therapist discuss other topics, establish rapport, talk about people and feelings and engage in a variety of activities that resemble what many psychotherapists do. Let me now turn my attention to some of the persisting issues that appear throughout the writings of most behavior therapists.

One of the central arguments advanced in support of behavior therapy is that it is more "scientific" than other approaches, with psychoanalysis most frequently serving as the prototype of "unscientific" therapy. The claim to scientific status rests on three supports: the repetitive use of scientific sounding terms such as objective, experimental, controlled, and the like; the attempt to identify behavior therapy with something called "modern learning theory," and, more generally, with the learning area of experimental psychology; and, three, the claim that behavior therapy deals with "behavior" rather than with fictitious inner states. With regard to the first of these, it should be clear that attempts at gaining scientific status through the ritualistic use of certain terms, while widespread in the "social-sciences," is illusory.

James McGaugh and I (Breger and McGaugh, in press) present a more detailed analysis of the misguided attempt to identify behavior therapy with "modern learning theory" to which only brief attention can be given here. When Wolpe, Eysenck and their followers speak of "modern learning theory," they, in fact, have reference to Pavlovian conditioning and several principles taken from Hull's early learning theory (e.g., the drive-reduction interpretation of reinforcement, fear as an acquired drive, etc.). While they claim that their approach is "based on" this presumably solid foundation, a careful examination reveals that the learning theory foundation is not at all solid and that the links between the practice of behavior therapy and learning theory are tenuous indeed. The recent literature in the field of learning reveals first, that the drive-reduction interpretation of reward has been largely abandoned; second, that the conceptualization of learning as the building up of conditioned habits or responses is largely giving way to a view emphasizing the acquisition of central mediators (cognitive maps, schemata, plans); and, third, that the belief in "reinforcement" as a basic principle of learning has long been questioned. (Reinforcement as an empirical law of performance is non-controversial but is usually so generally stated as to be of little explanatory value.) I should emphasize that these changes in learning theory have been forced on investigators studying simple animal behavior because of the inadequacy of the very conditioning principles that Wolpe, *et al.*, advocate as the "modern learning theory" on which they "base" their therapy techniques.

In addition, it must be stressed that the connection between conditioning techniques such as establishing a conditioned reflex and therapy techniques such as Wolpe's "counter-conditioning" is mainly semantic. Noam Chomsky makes this same point with regard to Skinner's attempt to explain language in behaviorist terms:

"He (Skinner in *Verbal Behavior*) utilizes the experimental results as evidence for the scientific character of his system of behavior, and analogic guesses (formulated in terms of a metaphoric extension of the technical vocabulary of the laboratory) as evidence for its scope. This creates the illusion of a rigorous scientific theory with a very broad scope, although in fact the terms used in the description of real-life and of laboratory behavior may be mere homonyms, with at most a vague similarity of meaning."

This same point is relevant to the argument that behavior therapy deals with "behavior" as opposed to fictitious inner states of mind (e.g., defenses, unconscious conflicts, id impulses). In actuality, behavior therapy deals with the same type of data as most other forms of psychotherapy: the verbalizations of patients talking about themselves. These data become "behavior" by the expedient process of *re-naming*, as when a patient's statement that he is anxious when "imaging" a fear-producing scene is called a "response" in the "counter-conditioning" technique. The point is further illustrated when we see that behavior therapists rely on patient self report as the prime data on which to evaluate the success of their methods.

There is, in fact, an underlying disagreement between behavior therapy and psychoanalysis concerning how far and in what direction one should develop a theory about data of this sort, but this is an argument that cannot be settled by labeling one's own data "behavior" and the opponent's "non-behavior."

This brings me to the explanation of neurosis put forth by the behavior therapists. (The Skinnerians are excluded here as they advance no special explanation.) Briefly put, Wolpe, Eysenck and others argue that neuroses are "mal-adaptive habits" or "symptoms," "conditioned anxiety," and nothing else. Symptoms are equated with conditioned responses, and anxiety is equated with fear, a secondary or acquired drive in Hullian terms. The problem of explaining the persistance of "mal-adaptive habits" is then handled in terms of the reinforcing effects of fear avoidance and the especially persistant characteristics of fear motivated behavior.

A number of things are wrong with this view of neurosis. One, abundant evidence (including that from animal learning studies) points to the inadequacy of a simple conditioning model and the overt response or "habit" as a satisfactory way of conceptualizing learning. Thus, even workers who have remained within a Hullian framework such as Miller and Spence have seen the need to introduce mediating concepts such as anticipatory goal responses. Two, the drive reduction view of reinforcement, the distinction between "primary" and "secondary" drives, and the belief in the uniquely persistent (and maladaptive) characteristics of fear-motivated behavior have largely been deposed by recent evidence (see Soloman, 1964). Thus, the conception of neurosis in terms of symptoms and anxiety parallels the general conception of learning in terms of overt responses, conditioning, and secondary drives and suffers from the same inadequacies. Three, the description of neuroses as consisting of discreet symptoms and fears does not agree with the descriptive clinical reports of most other therapists. While different theoretical orientations inevitably influence one's observations, it is probably fair to say that therapists of a variety of orientations describe neurosis in terms of cohering aspects of an individual's functioning, including his characteristic ways of interacting with other people, characteristic modes of thinking, perceiving, dreaming, a variety of "secondary gain" features, and the like. Specific or isolatable "symptoms" or fears may frequently be a part of such an integrated neurotic pattern, but, even viewed descriptively, they in no sense constitute a neurosis *per se*.

Let me turn my attention now to the claims of success put forth for behavior therapy. A typical and widely quoted example is Wolpe's claim that 90% of 122 cases treated with behavioral techniques were "apparently cured or much improved" (criteria of improvement consisting of "symptomatic improvement, increased productiveness, improved adjustment and pleasure in sex, improved interpersonal relationships and ability to handle ordinary psychological conflicts and reasonable reality stresses," as reported by the patient). If these results can be substantiated they present a strong argument for behavioral techniques, even granting the theoretical and empirical weaknesses previously discussed. Unfortunately, neither Wolpe's results nor any of the others I have reviewed stand up under careful scrutiny. Behavior therapy reports consist almost exclusively of uncontrolled case studies — which comes as somewhat of a surprise in the face of their claims to objectivity and their repeated attempts to identify their methods with experimental psychology. The high success rates most probably result from a combination of over-enthusiasm with the following sorts of biases: *Sampling bias:* Self-selection of cases exerts an unknown and uncontrolled effect. In addition, the cases most likely to show no effects from treatment (early drop-outs) are typically excluded from the sample on the grounds of not having had a chance to learn the rules, etc. (This is true of the Wolpe data cited above, for example). *Observer biases:* "Success" is typically assessed by the practitioner who administered treatment — allowing the biases stemming from commitment to a method and ego-involvement full sway. Patients typically report directly to the treating doctor — curtailing their freedom to report negative effects. Other workers doing field research on psychotherapy have paid greater attention to these important and potentially controllable factors, perhaps because they lacked the self satisfaction engendered by the "science" rationalization of behavior therapy. *Lack of experimental controls:* Examination of the actual practices of behavior therapists reveals a wide variety of activities including many of the standard psychotherapy practices. Since "learning" techniques are in no way isolated or allowed to vary in situations where other potentially effective techniques are controlled or absent, it is impossible to attribute any observed effects to them *per se*.

In summary: the picture that emerges of the behavior therapy group is not a very favorable one. Their stance as an embattled minority with their own behaviorist language and journals and their generally dogmatic and overstated position serves as a barrier to communication with many practicing psychotherapists. This is an unfortunate state of affairs, for there may well be some ideas and techniques of value in their work.

As many psychotherapists are aware, psychoanalytic psychotherapy is a limited as well as an expensive, time-consuming and difficult approach. Different methods of treatment, some with *different goals*, are certainly needed. Several points suggestive of different methods, may be taken from the work of the behavior therapy group.

1) The methods are typically quite *active*. The therapist provides a good deal of structure for the patient. He has confidence in his methods and presumably communicates this to the patient. Patient involvement is enhanced by giving him things to do (e.g., practice relaxation exercises at home), thus carrying the therapy to the patient's external situation. All of this contrasts with the unstructured and relatively passive approach of traditional psychotherapy which may be ineffective in reaching certain patients.

2) Methods such as hypnosis, suggestion, and other forms of magic may prove useful with some patients. Certain people think in magical terms and have a difficult time overcoming this in conventional therapy. I find the idea of trying to communicate directly with them on their own level an interesting one.

3) Two points of interest from the Skinnerian work: First, the focus on the maintenance of behavior by its immediate consequences leads them to work with what is more typically called the "secondary gain" features of neurosis. That is to say, they look for the "pay off" of any particular symptom or behavior pattern and attempt to alter the environment so that this "pay off" is different. Again, this may prove valuable with certain types of cases, (e.g., children who are manipulating their parents with crying fits or bed-wetting). Second, the Skinnerians, perhaps because of their background with animal work, seem to have an aversion to talking to people. Thus, even in "verbal conditioning," the reinforcement consists of "unhumms," which are more like food pellets than speech. While I think that, by and large, this is a liability (communication via language is so much more efficient!), it may prove useful with certain cases whose neurotic or psychotic problems are so intertwined with speech that a different channel of communication is valuable.

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ANNOUNCEMENTS

Abstract of the Revised Certificate of Incorporation[1]

THE SOCIETY FOR
PROJECTIVE TECHNIQUES
AND
PERSONALITY ASSESSMENT, INC.

First: The name of the Corporation shall be The Society for Projective Techniques and Personality Assessment, Incorporated.

Second: The purposes for which this Corporation is formed are to further the development of projective and related methods of personality assessment.

(a) By various authorized publications.

(b) By organizing coordinated research projects.

(c) By encouraging and assisting in providing adequate training facilities for professional groups interested in the use of these methods and setting up definite training standards.

(d) By promoting generally in such other ways as may be appropriate the study, research, development and application of projective and related methods of personality diagnosis.

Third: The location of the principal office of this Corporation is at 790 Broad Street, in the city of Newark, county of Essex and the name of the agent therein and in charge thereof, upon whom process against the Corporation may be served, is David H. Youneff, Esq.

Fourth: The number of trustees shall be three (3) or more.

Fifth: The Corporation may have an office outside the State of New Jersey for the convenience of its officers and trustees, and where meetings of the trustees may be held.

By-Laws

ARTICLE I. *Membership*

SECTION 1. Members of the Society for Projective Techniques and Personality Assessment, Inc., shall be duly elected psychologists, psychiatrists, and other professional persons whose work and interests include the study of personality or the understanding and differentiation of its disorders, whose activities promise an enhancement of the scientific objectives of the Society, and whose qualifications meet those set by the Society.

SECTION 2. There shall be six classes of membership to be known as (a) Members, (b) Fellows, (c) Affiliates, (d) Associates, (e) Honorary Members, and (f) Life Members.

ARTICLE II. *Qualification for the Several Classes of Membership*

SECTION 1. *Members.*

a. Persons whose work and interests lie primarily in the study or treatment of human behavior and its disorders, and who are recognized by virtue of professional training, experience, and membership in professional associations, as qualified psychologists, psychiatrists, or research workers in these fields, may be elected as Members provided their qualifications conform to the following standards:

(1) The Doctor's degree in psychology and a minimum of one year of supervised experience, such as an internship, both the graduate training and internship should conform to the standards of the Education and Training Board of the American Psychological Association in terms of quality and quantity, or the M.D. degree.

(2) At least a full academic year's study in a full academic University course, or the equivalent of such a course in one or another of the projective methods under a recognized instructor in such method and in addition evidence of such adequate practice of the method under proper supervision as to evidence conscientious and substantial interest therein. By "recognized instructor" is meant one who is either a Fellow of the Society or else one whose competence in the opinion of the Membership Committee would meet the requirements for Fellowship.

(3) At least two thousand hours of supervised clinical work in a service setting or of supervised research work in psychology or psychiatry acceptable to the Membership Committee, the commencement of this work to have followed the completion of two full years of graduate work in psychology or residence in psychiatry, and at least a full academic year's study in a full academic course, or the equivalent of such a course in one or another of the projective or related methods of personality assessment.

b. Each applicant for Member shall be

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[1] As amended March 13, 1965.

endorsed as to the stated training and supervision and as to personal soundness and integrity by at least two sponsors, one of whom shall be at least a Member and one of whom shall be a Fellow.

c. Names of applicants approved by the Membership Committee shall be forwarded to the Board of Trustees for election. The affirmative vote of two-thirds of the members at a regularly convened meeting of the Board of Trustees shall be required for election.

d. Member status in itself does not imply any specific degree of proficiency in any of the projective methods.

SECTION 2. *Fellows.*

a. Fellows must be psychologists or other outstanding individuals in the behavioural sciences who have demonstrated particular competence in the area of projective and related methods of personality assessment as demonstrated in one of the following ways:

(1) A history of successful teaching in the area of projective and related methods of personality assessment demonstrated by attainment of the rank of Associate Professor or higher with specific responsibility in the area of projective and related methods of personality assessment; or

(2) Have contributed titles of appropriate quality in the area of projective methods of personality assessment of either a theoretical or research nature; or

(3) Have demonstrated professional leadership through supervision, administration or consultation with at least two doctoral-level psychologists engaged actively in the use of projective or related methods of personality assessment within an institution or agency; or

(4) Have demonstrated other high attainments such as acquisition of the ABEPP Diploma.

b. A Doctor's degree with special training in projective and related methods of personality assessment and a minimum of five years of acceptable experience following the attainment of the highest degree.

c. Each applicant for Fellow shall be endorsed as to competence, personal soundness and integrity by at least two Fellows of the Society.

d. For election to Fellowship the affirmative vote of two-thirds of the members present at a regularly convened meeting of the Board of Trustees shall be required. Such a vote may be cast by mail.

e. An appropriate certificate may be issued to any Fellow attesting his competency as stated in above subdivisions.

SECTION 3. *Affiliates.*

a. Persons who are members of professions other than clinical psychology and who have a sincere and legitimate interest in projective techniques may be elected as Affiliates provided their qualifications conform to the following standards:

(1) A Baccalaureate degree.

(2) Two years of experience in the particular professional field of the applicant.

b. Each applicant for affiliate shall be endorsed as to professional status, as to his interest in projective techniques, and as to personal soundness and integrity by at least two sponsors of whom one shall be at least a Member and one a representative member of his own profession.

c. Names of applicants approved by the Membership Committee shall be forwarded to the Board of Trustees for election. The affirmative vote of two-thirds of the members present at a regularly convened meeting of the Board of Trustees shall be required for election.

SECTION 4. *Associates.*

a. Persons who are graduate students in clinical psychology or who are working in supervised positions may be elected as Associates provided their qualifications conform to the following standards:

(1) The completion of one full year of graduate study in clinical psychology plus one year of supervised experience, or completion of two years of graduate study.

(2) At least one semester of study in a full academic University course in one or another of the projective or related methods of personality assessment.

b. Each applicant for Associate shall be endorsed as to his training and as to personal soundness and integrity by at least two sponsors who shall be at least Members of the Society.

c. Names of applicants approved by the Membership Committee shall be forwarded to the Board of Trustees for election. The affirmative vote of two-thirds of the members present at a regularly convened meeting of the Board of Trustees shall be required for election.

SECTION 5. *Honorary Members.* Persons of outstanding distinction or who have done much in their fields to promote the objects of the Society may be elected upon unanimous proposal by the Membership Committee and unanimous vote of members at the annual meeting of the Society. Names proposed for honorary membership shall be sent with the notice of the annual meeting to all members of the Society. Votes mailed by members not present at the annual meeting shall be counted if received by that time.

SECTION 6. *Life Members.* Any member who has reached the age of sixty-five years and has been a member of the Society for at least twenty-five years shall be exempt from further payment of dues upon request in writing to the Board of Trustees. Although such members shall be exempt from paying dues, they shall retain rights and privileges of the Society. They may subscribe to the Journal at the actual publication cost.

SECTION 7. Any person who, for any reason has ceased to be a member of any status may, on written application therefor, be reinstated upon such terms and conditions, if any, as the Membership Committee may recommend and the Board of Trustees at its discretion approve.

SECTION 8. Each member, by virtue of having made application for membership, shall upon election, be deemed without further act on his part, to have subscribed to the Constitution and By-Laws, and shall meet all obligations of the Constitution and By-Laws as they may from time to time be amended during the period of his membership.

SECTION 9. A member may be disciplined for professional misconduct or for conduct injurious or destructive to the Society, its objects or reputation. Charges of misconduct or injurious conduct shall not be entertained against a member unless the precise nature of the charges be submitted in writing subscribed by a member. Such charges shall be referred to a Committee on Professional Ethics to be appointed by the president which shall determine whether or not the charges have been sustained and if sustained shall make recommendation as to the discipline to be administered, which may consist of expulsion, suspension, censure, admonition or other action. Such determination, however, shall not become effective until approved by the Board of Trustees, which shall also determine the discipline, if any, to be administered.

The Committee on Professional Ethics shall proceed in accordance with such code or rules of procedure as from time to time may be adopted by the Board of Trustees, but such rules shall, in any case, provide for reasonable notice to the member of the charges, reasonable notice of hearing, and an opportunity to be heard.

ARTICLE III. *Officers*

SECTION 1. The officers shall consist of a President, President Elect, Editor of the Journal, Executive Editor of the Journal, Secretary and Treasurer. They shall assume office immediately after the annual meeting following their election and shall serve until the next annual meeting of the members in the case of the President and the President Elect; until the second annual meeting of the members following their election in the case of the Secretary and Treasurer, the Secretary to be elected in even-numbered and the Treasurer in odd-numbered calendar years; and until the third annual meeting of the members following their election in the cases of the Editor and Executive Editor of the Journal; and in the case of all officers until the election of their successors.

SECTION 2. The officers specified in Section 1 hereof shall be elected by mail ballot in advance of the annual meeting of the members at which the respective terms of office to be filled expire, as stated in Section 1, except that President Elect shall automatically become President on the expiration of his term as President Elect.

SECTION 3. Vacancies occuring before the expiration of the term of any of the officers specified in Section 1 hereof, shall be filled for the remainder of the term by the Board of Trustees.

SECTION 4. The officers shall have the powers and perform the duties customarily belonging to their respective offices.

a. Between meetings of the Board of Trustees, the President shall direct the business of the Society. He shall be an ex-officio member of all committees and chairman of the Board of Trustees. He shall preside at all sessions of the annual meeting or appoint a substitute. He shall deliver a Presidential address. He shall appoint the chairmen and members of all committees which are to be appointed following his ascension to office, or because of the occurrence of vacancies or because of the establishment of other committees as provided for herein.

b. The Editor of the Journal shall act in an advisory capacity to the Executive Editor and to the Editorial Committee of which he shall be a member.

c. The Executive Editor of the Journal of the Society shall in all other respects be the chief executive officer of the Journal. He shall be Chairman of the Editorial Committee and shall be responsible to the Board of Trustees for the publication of the Journal. He shall also be an ex-officio member of the Finance Committee.

d. The President Elect shall, in the absence of the President, perform the functions of the President.

e. The Secretary shall keep records of all business sessions and make reports thereon. He shall conduct such correspondence and perform such other duties as are customary and as the objects of the Society may require.

f. The Treasurer shall receive all sums of money due to the Society and shall disburse such sums as are necessary to meet the lawful indebtedness incurred and authorized by the Society by its vote or by the Board of Trustees. He shall have the power to invest and re-invest in the name of the Society such funds as are not expended. He shall keep and render to the Society accurate account of all sums received and disbursed and of all sums and funds which are not expected.

SECTION 5. In advance of each annual meeting, the Nominating Committee shall cause to be mailed to the members entitled to vote, its nominations for Officers and Representatives at Large to be elected, together with an appropriate election ballot. Elections shall be by a majority vote of those whose ballots are received within thirty days from the date of mailing.

ARTICLE IV. *The Board of Trustees*

SECTION 1.

a. The Board of Trustees shall consist of the elective officers as stated in Article III, Section 1, and three others who shall be the last past President and two Representatives at Large, one of whom shall be from the East, and one of whom shall be from the West or mid-West.

b. Without in any way limiting the powers conferred by law upon the Board of Trustees, the Board between meetings of the Society shall have the following powers:

It shall have power to authorize the expenditure of money for the conduct of the annual meetings, for the printing and mailing of notices and programs therefor, for the publication of the Journal, for the necessary stationery, postage and secretarial expenses incident to these purposes and for such other objects as may be necessary and proper for the conduct of the Society's affairs.

It shall have power to fill vacancies in its own body until the next annual meeting of the Society.

It shall have power to make and amend rules for its own procedures. It shall keep record of such rules.

It shall have the power to confer with such other organizations as seem fit in order to lay out plans for cooperating committees.

If at any annual meeting the Society does not set the time and place for the next annual meeting it shall decide such time and place.

The Board of Trustees shall cooperate with the Program Committee in making arrangements for the annual meeting or, in the absence of a Program Committee, it shall itself make such arrangements.

The Board of Trustees shall take such steps as may be necessary to carry out any program determined by vote of the Society and not otherwise provided for and generally conduct the affairs of the Society when it is not in session.

SECTION 2. The Representatives at Large shall be elected in the manner specified herein for the election of officers. They shall serve for terms of two years and until the election of their successors, the Representatives from the East to be elected in even numbered years and the Representatives from the West in odd years. Vacancies occurring before the expiration of the term of office of a Representative at Large shall be filled by the Board of Trustees until the next annual election of officers.

SECTION 3. The Board of Trustees shall meet at least three times a year. The first meeting shall follow immediately after the annual meeting of the Society and the last meeting shall be held before the annual meeting of the Society in the following year. One meeting will be held approximately midway between the first and the last meeting as nearly as may be convenient and practicable. Special meetings may be called at the instance of the President or of five members of the Board.

SECTION 4. Five shall constitute a quorum of the Board but the concurrent vote of four members shall be necessary to constitute action by the Board.

SECTION 5. The Chairmen of the Standing Committees shall receive notice of and shall be privileged to attend Board meetings and may take part in the discussions had at the meetings but shall have no vote. At such meetings as the President may deem the presence of a Committee Chairman necessary for the proper dispatch of the business of the

Board, his attendance at such meeting shall be facilitated by the Society to the extent that the resources of the Society reasonably permit.

ARTICLE V. *Committees*

SECTION 1. Appointments to Standing Committees shall be of three (3) years duration and each Standing Committee shall have at least six (6) members, except in the case of the Finance Committee, divided as nearly as may be, into three classes with expiration dates occurring annually in rotation.

SECTION 2. The Standing Committees shall be:

a. *The Editorial Committee:* This Committee shall determine the editorial policy of the Journal of the Society.

b. *The Membership Committee:* This Committee shall pass upon the qualifications of applicants for membership in the Society. They may from time to time, subject to the approval of the Board of Trustees, establish such appropriate requisites, rules and practices, including but not limited to the adoption of application and sponsorship forms, as may be calculated to assume adequate maintenance of the standards herein specified respectively for Member, Fellow, Associate, Affiliate, Honorary and Life Members.

c. *The Finance Committee:* This Committee shall concern itself and be acquainted with the financial affairs and condition of the Society at all times; shall cooperate with the Treasurer in preparation of an annual budget; and shall periodically audit the Treasurer's accounts. The Executive Editor shall be an ex-officio member of this committee. It shall consist of at least three (3) members in addition to the Executive Editor.

d. *The Program Committee:* This Committee shall arrange and supervise the program of the Society at its annual meeting. The Chairman of this Committee shall be the President Elect.

SECTION 3. There shall be a Nominating Committee and there may be other committees, these all to be appointed by the President, as provided in Article III, Section 4 (a).

ARTICLE VI. *Meetings*

SECTION 1. An annual meeting of the membership for the purpose of conducting a scientific assembly and transacting the business of the Society, shall be held at such time and place as may be determined by majority vote of the members present at a business session of the next preceding meeting, or, in case of failure so to do, by the Board of Trustees. Notices of the annual meeting shall be sent to all members at least four weeks before the date of the meeting.

SECTION 2. At each session at said meeting, the President, the President Elect or some member delegated by the President shall preside, and keep the readers of papers within their alloted periods and discussants within such limits as the presiding officer may determine. The time allotted to any reader or discusser may be extended by vote of the members present at a session.

SECTION 3. Persons not members of the Society may be invited to attend sessions of the scientific program, and may be accorded the privilege of presenting papers and of discussing papers presented. The Board of Trustees may provide for one or more scientific sessions which shall be closed to non-members.

SECTION 4. Only Members, Fellows and Life Members shall have a right to vote.

SECTION 5. Voting may be by mail, by voice, or by such other methods as the presiding officer may determine or as the members present at any meeting may decide by majority vote.

SECTION 6. Special meetings of the members may be called by concurrent vote of at least five (5) members of the Board of Trustees on such reasonable notice as the Board of Trustees may fix.

ARTICLE VII. *Quorum*

At any annual meeting of the Society, ten (10) per cent of the number of voting members in good standing at the close of the next preceding annual meeting shall constitute a quorum for the transaction of business.

ARTICLE VIII. *Publications*

SECTION 1. The Society shall publish a scientific journal, which journal shall also record the proceedings of the Society together with any other matter that shall seem fitting to the Editorial Board.

SECTION 2. The Editorial Board shall consist of the Editorial Committee.

SECTION 3. Such journal shall be distributed to all members of the Society and to all subscribers who are not members, at such rate as the Board of Trustees may from time to time determine.

SECTION 4. All papers read at the annual meeting must be submitted to the Editorial Board for publication in the Journal if the Editorial Board deems fit.

SECTION 5. Other authorized publications may be issued from time to time at the discretion of the Editorial Board.

ARTICLE IX. *Finance*

SECTION 1. The Society shall be empowered to receive, hold and invest funds and to disburse sums therefrom in payment of indebtedness lawfully incurred on behalf of the Society.

SECTION 2. The fiscal year, for all purposes of the Society, shall coincide with the calendar year.

SECTION 3. The Secretary, and the Treasurer, and the Editor and the Executive Editor of the Journal shall be allowed expenses for postage and secretarial work in connection with their offices. Other expenses may be authorized by the Board of Trustees.

SECTION 4. Annual dues shall be required of all members, except honorary and life members, and shall be payable at the beginning of each year. Newly elected members whose election shall take place prior to June 30th shall pay dues for the year beginning January 1st preceding their election and shall receive the Journal for that year. Newly elected members whose election shall take place after June 30th shall have the option of paying dues for the entire year and receiving the Journal for that year, or of commencing payment of their dues on the following January 1st.

SECTION 5. Annual dues for membership in the Society shall be established by the Board of Trustees and shall include subscription to the Journal. In the assessment of the first year's dues, a newly-elected member who has already subscribed to the Journal for that year shall be given credit for the amount of his Journal subscription.

SECTION 6. Members in arrears for dues more than one year shall be automatically suspended and shall not receive the Journal unless special action is taken by the Board of Trustees to continue their membership. Failure to pay dues after suspension for a year shall result in automatic cancellation of membership.

ARTICLE X. *Amendments*

SECTION 1. Amendments to the By-laws may be proposed in either of the following ways:

a. By resolution of the Board of Trustees,

b. By majority vote of the members present at any Business Meeting of the Society.

SECTION 2. Amendments to the By-laws shall be made by mail ballot as follows: An appropriate communication indicating both the matter proposed to be deleted and added and also, if the Board of Trustees deems it necessary, a brief statement of the purposes of the change, shall be mailed to all members, together with a ballot to be returned to the Society. The Amendments shall be deemed adopted if approved by two-thirds of those voting, whose ballots have been returned within 30 days after the date of mailing, provided that the total ballots returned within the said 30 days have been at least equal to 20 per cent of the members entitled to vote at a Business Meeting. Amendments shall be effective when and as adopted unless otherwise specified in the communication to the members proposing the amendment.

RESULTS OF BALLOTING

The Board of Trustees of the Society for Projective Techniques & Personality Assessment, Inc. wishes to announce the results of balloting on the proposed changes in the name of the Society and the by-laws.

Number of ballots sent to members	828	
Number of ballots returned	510	(62%)
Returned blank	2	
Approved	460	(90%)
Disapproved of some section	48	

Your Board is pleased by the membership's confirmation that our deliberations represent their wishes and best thinking about our history, the present status of the field and our goals for the foreseeable future.

WORKSHOP

A summer *Workshop in Projective Drawings* will be held at Lincoln Institute for Psychotherapy, 430 West 58th Street, New York City, and will be conducted jointly by Emanuel F. Hammer, Ph.D., and Selma Landisberg, M.A. The Basic Workshop will meet July 26th, 27th, and 28th, from 10 A.M. to 12 P.M., and from 1 P.M. to 3 P.M. daily. It will provide a grounding in fundamentals, go on to considerations of differential diagnosis. The Advanced Workshop will meet July 28th, 29th, and 30th, from 10 A.M. to 12 P.M., and from 1 P.M. to 3 P.M., daily. It will deal with the projective drawing appraisal of psychodynamics, conflict and defense, psychological resources as treatment potentials, and projective drawing usage in therapy. The workshops will include the House-Tree-Person Drawing Test, the Draw-A-Person Test, Draw-A-Family procedure, Unpleasant Concept Test, Draw-An-Animal Test, and free doodles. The drawings of children, adolescents, and adults will be considered. The book, "The Clinical Application of Projective Drawings," by Dr. Hammer, (Charles Thomas, Publisher, East Lawrence Avenue, Springfield, Ill.) is suggested as preparation for the workshops. Information regarding admission, fees, and requirements may be obtained by writing to Miss Selma Landisberg, 166 East 35th Street, New York 16, New York.

THE MERRILL-PALMER INSTITUTE has announced a training program in the area of emotionally disturbed children, financed by the W. T. Grant Foundation. Training is focused at the post-masters, doctoral, and post-doctoral levels for personnel from four areas:

1. Preschool teachers, whether working with emotionally disturbed children in special classes or with normal groups, but with an interest in emotional problems.
2. Primary teachers of special classes of children with learning problems of emotional origin;
3. University faculty who train teachers; and,
4. Psychological consultants.

An experimental preschool therapeutic project is utilized as the practicum for this joint program between the Early Childhood Education Program and the Psychotherapy Program of the Institute.

Fellowship are available for this program, as well as for post-doctoral internships in psychotherapy.

For further information, write: Dr. Aaron L. Rutledge, Head, Counseling and Psychotherapy Program, Merrill-Palmer Institute, 71 East Ferry Avenue, Detroit 2, Michigan.

WORKSHOP IN CHILD DIAGNOSIS

A workshop in child diagnosis patterned after the one given last year at the Devereux Schools will be conducted July 5 - 9, 1965 at the Marriott Motor Hotel, Bala-Cynwyd, Penna.

The course will focus on learning disturbances in children of normal potential with emphasis on the emotional aspects of etiology and on the role of the parents. The involvement of the learning process in a variety of neurotic and psychotic conditions will be considered, and both diagnostic and therapeutic aspects will be discussed.

The staff will be Walter G. Klopfer, Ph.D., M. Eleanor Ross, Ph.D., Jules C. Abrams, Ph.D., Sydney Copel, Ed.D., Beulah Winstel, M.S.S., and Milton Brutten, Ph.D.

The fee is $70.00, payable in advance or after a $10.00 deposit. Address inquiries to D. Eleanor Ross, B-910 Presidential Apts., Philadelphia, Penna. 19131.

Accommodations at the Marriott Motel Hotel range from $9.50 per person to $13.00 for doubles.

NEW MEMBERS

As a consequence of Membership Committee activities the Board of Trustees is now pleased to welcome the following new members and promotees:

Life Members
Carroll, Clara
Cowin, Marion
Junken, Elizabeth

Fellows
Barclay, Allan
Burton, Arthur
Rothstein, Ralph

Members
Barnes, Edward J.
Bell, Robert B.
Condell, James F.
Goldberg, Philip A.
Greiner, David S.
Handler, Leonard
Herron, E. Wayne
Kaplan, Solomon D.
Kramer, Ernest F.
Matunas, Marian I.
Robin, A. Milton

Associates
Aronson, Cynthia M.
Auger, E. Richard
Blaser, Andreas B.
Cohen, David W.
Cohen, Morris A.
Fishman, Daniel B.
Gilbert, Jerrold I.
Stunden, Alastair A.
Trites, Ronald L.
Weddig, Thomas M.

PAPERS FOR PUBLICATION

The papers listed below have been accepted for publication as of March 15, 1965 and are slated for publication in the near future.

Cooper, G. W., Bernstein, L. & Hart, C. Predicting suicidal ideation from the Rorschach: An attempt to cross-validate with negative results.

Elizur, A. The psychological evaluation of the organic child.

Friedman, N., Kurland, D., & Rosenthal, R. Experimenter behavior as an unintended determinant of experimental results.

Handler, L. & Reyher, J. Figure drawing indices: A review of the literature.

Hurley, J. R. & Guinan, J. An investigation on the reliability of human figure drawings.

Kahn, M. & Jones, N. F. Human figure

drawings as predicators of admission to a psychiatric hospital.

Klinger, E. & Roth, I. Diagnosis of schizophrenia by Rorschach patterns.

Levy, J. Early memories: Theoretical aspects and applications.

McCully, R. S. Current attitudes about projective techniques in APA approved internship training programs.

Mills, D. H. The research use of projective techniques: A 17-year survey.

Murstein, B. I. Diagnostic and actuarial correlates of thematic and questionnaire measures of hostility.

Little, K. & Adams, D. The catharsis value of aggressive fantasy.

Rosenberg, L. A. Rapid changes in overt behavior reflected in the Draw-A-Person: A case report.

Rychlak, J. F. & O'Leary, L. R. Unhealthy content in the Rorschach responses of children and adolescents.

Singer, E. & Pittman, M. A. Sullivanian approach to the problem of reading disability: Theoretical considerations and empirical data.

Solkoff, N. & O'Connor, J. Effects of changes in instructions and pictorial variations on story-telling performance of paranoid schizophrenics.

Sternberg, D. & Levine, A. An indicator of suicidal ideation of the Bender-Visual-Motor Test.

Thorpe, J. S. & Schwartz, J. D. Level of perceptual development as reflected in responses to the Holtzman Inkblot Technique.

Weiner, I. B. Follow-up validation of Rorschach tempo and color use indicators of schizophrenia.

Winter, W. B., Ferreira, A. J. & Olson, J. L. Story sequence analysis of family TATs.

SUBSCRIPTIONS: THE JOURNAL OF PROJECTIVE TECHNIQUES & PERSONALITY ASSESSMENT is the official organ of the Society for Projective Techniques and Personality Assessment, Inc., and is published quarterly by the Society, a non-profit corporation, for the study and advancement of projective and assessment techniques. Annual subscription (calendar year) $10.00, foreign $10.50. Single copies $2.50. Back copies of the Journal are available.

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MEMBERSHIP: Information about membership in the Society and applications for membership may be obtained by writing to: Society for Projective Techniques and Personality Assessment, Inc., 1070 E. Angeleno Ave., Burbank, Calif. 91501.

CORRESPONDENCE & MANUSCRIPTS: All correspondence relating to editorial matters should be addressed to Walter G. Klopfer, 631 Commercial St., S.E., Salem, Oregon 97301. Manuscripts should be typewritten, double spaced, *with one carbon copy included.* The format must follow that used by the American Psychological Association as outlined in "Publication Manual of the American Psychological Association." All manuscripts are to be accompanied by an abstract of 100 to 150 words of the type used in Psychological Abstracts. They will precede the article and substitute for the Summary at the end.

All illustrative material should be submitted in finished form for photographic reproduction without retouching. Original drawings should be submitted and not tracings or photographs. The cost of such illustrative material including tables and special type must be paid for by the author (at cost). Basic publication costs are gratis.

Reprints of articles can be ordered only upon return of the corrected galley proofs. Rates for reprints are determined by the length of the paper. A reprint cost-and-order blank will accompany each galley.

The editors reserve the right to refuse any manuscript submitted and to make minor deletions and condensations. No major changes will be made without the author's permission.

CHANGE OF ADDRESS: To insure your receiving your copies of the Journal, please inform the Society of changes in your address.

Journal of Projective Techniques & Personality Assessment

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Vol. 29 December, 1965 No. 4

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Motivation for Parenthood[1]

A. I. Rabin
Michigan State University

The second explosion of our era, the population explosion, is considered by many to have just as serious consequences for the future of humanity as the first one—the atomic. All sorts of concern are being expressed about the impending danger of overpopulation and the possible sequelae of such an eventuality. Although many reasons for the upsurge in the birth and survival rate are known and understood, still some others remain shrouded in mystery. This mystery is particularly related to the increased birthrate in this country and, especially, in the more enlightened strata of the population (Hoffman and Wyatt, 1960). In trying to search for solutions of this problem, one stumbles upon a more basic question, to wit: "Why do people have children?" "What is the motivation for parenthood?" At least in the case of those for whom parenthood is planned, not incidental or accidental.

Another, perhaps less cosmic, but important, source for the sort of question just raised is deeply rooted in the whole psychological realm of parent-child interaction. We have been concerned, for many years, with the needs of children and the readiness of parents to fulfill those needs. We have not however, concerned ourselves sufficiently with the needs and expectancies of parents in relation to their children. The literature abounds with studies of the effects of parental attitudes upon the child's personality and behavior (e.g. Gliedwell, 1961), with the facilitation or inhibition of psychological growth as a consequence of these attitudes, with their health-promoting potential or pathogenicity. However, scant attention has been paid to the origins of the various parental attitudes, to the motivations, overt or covert, which underlie them.

With your indulgence, I shall undertake a brief excursion into this marshy terrain, being fully cognizant of the great complexity of the topic to which justice cannot be done in this circumscribed presentation. An attempt will be made to touch upon major theoretical issues, present some empirical data, and outline a program for future research and investigation.

Since our problem is a unique human problem, we can obtain little help from the extensive observations on subhuman species. There, the emphasis is upon mating, copulating, nest-building, etc.; upon *behavior* which constitutes parenthood. Motivation for parenthood in the sense of anticipation and expectancy (and a capacity to reflect upon it) is dependent upon the human "time-binding" capacity. This ability, according to some, is our major distinction in the animal kingdom.

Biology, however, cannot be neglected in a discussion of motivation for parenthood, especially motherhood. Benedek (1952) considers motherliness as "an evolution of a basic anlage, which matures step by step during the development of the individual, through the identification of the girl with her mother, and through the repetitions of the emotional and physiological metabolism of the progesterone phases of the cycle." This characteristic of *motherliness*, using Deutch's (1945) definition, which is the major motive for *motherhood*, is independent of the actual childbearing experience. Thus, we have here a psychosomatic interaction of biologic and psychologic-experiential factors as motivators for the need to have children. This view is consistent with Beach's (1948) analysis of the hormone-central nervous system interaction underlying maternal behavior.

---

[1] Presidential Address presented to the annual meeting of the Society for Projective Techniques and Personality Assessment, Inc., on September 4, 1965, at Chicago, Ill.

In a later publication on "Parenthood as a developmental phase" (Benedek, 1959), the superego aspect receives major emphasis. The first level of superego "is incorporated in the parent's personality through his development from infancy to parenthood. This directs his ego aspirations particularly to be a good parent, to raise a child who by growing up to his own self-realization also fulfills the parent's aspirations." The second level concerns the modifications that take place after the child is born.

Thus we have here a proposal, within the psychoanalytic framework, which relegates motivation for parenthood, in addition to the constitutional anlage, to the identification process and resulting superego and ego ideal, both in men and women. For the father, in particular—"the newborn represents survival and also hope for self-realization; narcissism" (Benedek, 1959). Furthermore, Benedek postulates a drive toward fatherliness which is based on biological bisexuality and on the biological dependency upon the mother. We note, therefore, that the psychosomatic origins attributed to motherliness are extended to the motivation for fatherhood as well. Although Benedek is able to give some supportive research evidence concerning the parallelism and interaction between physiological and psychological processes in women, no such evidence is available for men. Her postulates about the biological aspects of fatherliness, especially, remain in the realm of speculation and unverified theory.

Although the biological substratum may be important, it need not enter into the psychological study of motivation for parenthood. Biology may be part of the causality, but as Rapaport pointed out (1960), "A theory of motivation must distinguish motivations from causes: all motivations are causes, but not all causes are motivations." In the investigation of the motivations for parenthood we would, perhaps, do best in concentrating upon the characterological, superego and ego development of the parent under consideration. Needless to say that the transmitted contents of the superego, cultural and subcultural, are important ingredients of such exploration.

Pearce and Newton (1963) have advanced, albeit indirectly, a few interesting ideas on the subject. They write: "At the most primitive level, having babies offers an opportunity to reintegrate many uneasy feelings about one's body image and one's physiological capacity. Both men and women are reassured to know that their hitherto untested organs function". They also point out that having a child "is likely to be the most crucial declaration up to this point in the young adult's life of the possibility of his being equal to his parents." Finally, the point is made that the child is an affirmation of the continuity of the parent's impact on the future and his own contribution to it. The authors do not seem to make any distinction in the motivations of fathers and mothers and are somewhat removed from Benedek's psychosomatic orientation, although the developmental roots of parenthood motivation are not neglected. Needs for proof of personal adequacy and autonomy as well as continuation of one's existence, for non-existence is inconceivable, are the major points expounded.

My concern with these issues stems from an interest in parent-child interaction, in parental attitudes, and how they impinge upon their offspring. Thus it would be appropriate, at this point, to examine motivations and their correlated attitudes. Taylor (1955) lists "four main ways of thinking about children: as a responsibility, as a nuisance, as a compensatory source of satisfaction, or as a bundle of potentialities." Needless to say the second "way of thinking" cannot be counted among the motives for parenthood, but the remaining three may be. Stringent adherence to superego demands may account for seeing children as a responsibility to society. Compensatory need satisfaction may have its origins in neurotic personality adjustment, the child being used as an instrumentality. The view of children as a bundle of potentialities, which is considered the healthiest, is most difficult to understand from a motivational point of view.

One of the most favorable situations for the study of motivation for parenthood is in cases of adoption. Here parenthood is not accidental or incidental (and later rationalized), but planned and intentional. Fortunately, there is some enlightenment that we may obtain from the people and agencies concerned with the adoption of children, such as the recent paper (Ross and Anderson, 1965) about the motivation of adoptive parents. An analysis of motivation of mothers in three unsuccessful adoptive cases shows that the dominant motives in these cases were as follows: "hope that natural pregnancy would follow adoption"; having a baby was in the service of the second mother, who was phobic, for it helped her from facing fearful environmental situations; and, in the third case, "mother became bored with collecting antiques and was on the verge of becoming an alcoholic"; the baby was expected to prevent her further decline and to serve as a means of cementing a shaky marriage. We see here the dominant element in the motivational system. The baby being used as an instrumentality, rather than a goal in itself. The compensatory aspect, referred to above, appears to be important in all three of these instances. It may be added, parenthetically, that these motives are not altogether unknown in many cases of natural motherhood. We shall omit, for the time being, the detailed consequences of such motivations for the child involved.

In another paper that deals primarily with foster parents (Veiga, 1965), the author points out that, in the case of the less successful ones, "their motivation was too dependent upon their own narcissistic needs, and with their expectations frustrated, they rationalized and justified their inability to involve themselves in the treatment process." It is too bad, however, that this author did not spell out those narcisstic needs. But, here too, we may note the importance of self-enhancement or compensation, among others, as a dominant motive. In a sense, in this instance also, the child is employed as an instrumentality, as a means to an end.

At this point it may be of interest to report the puzzlement experienced by American mothers when child rearing in the Kibbutz (Rabin, 1965) is described. Since the mothers have so comparatively little to do with the rearing process, why do they want to have them? Yet the facts are that families in the Kibbutzim are growing larger, and 80 per cent of the young mothers who have one or two children expect more (Rabin, 1964). It appears that the motivations for parenthood as described by Benedek, and Pearse and Newton, are present regardless of how limited the interaction between mother and child are *after* birth. The important element that may be lacking in the motivational system of Kibbutz parents is, perhaps, the anticipation of the use of the child as an instrumentality, as a compensation for their own unfulfilled needs. The elimination of this factor may, incidentally, account for the relatively good mental health and personality development of the Kibbutz child (Rabin, 1965).

We have seen, therefore, a wide variety of motives postulated—ranging from the psychosomatic and biosocial orientations to the more psychological and social frames of reference.

Since there is little information of a controlled, empirical nature available, some preliminary investigation of the range and frequency of various motives appeared desirable.

As the first stage in the empirical exploration of the motivational range underlying parenthood we studied several groups of undergraduates, in two universities, in New York and Michigan. The students were asked to complete 30 incomplete sentences, especially devised for the purpose of studying motivation for parenthood, attitudes to marriage and to child-rearing. The responses to the incomplete sentences were placed in a number of categories and, then, independently rated by two psychologists. The usual level of agreement between raters, acceptable on statistical grounds, was obtained. When responses were complex and often involved several categories the first category only was counted, being implicitly considered as the most important one for the respondent. We are aware that this procedure placed important restrictions on the data but considered it legitimate for our exploratory purposes. We are also cognizant of the fact that such a complex behavioral pattern as parenthood is based on many motivational factors and is multiply determined. Nevertheless, the emphasis of dominant and salient factors, viewed by our respondents, was considered of importance in the subsequent construction of a preferential list of items which may be assigned different importance by respondents. The aim was that of obtaining a pool of responses which will sample a wide range of motivational sources, at a relatively conscious level.

To be sure, this is not to deny the possibility of the existence of motives which are removed from awareness, repressed or suppressed. But, as a first step, a minimum of inferences obtainable with more searching methods was indulged in. We are tapping some elements of the motivational system, but certainly not all of it, especially at the unconscious stratum.

Since more than 90 per cent of the 194 respondents (144 from Michigan State University and 50 from the City College of the University of New York) were single, the responses reflect expectations and observations stemming to a great extent from their own family experiences. Very few of them had personal experience in being parents, although given the present trend, they may be or expected to be parents within a short time.

With two exceptions, all of these young men and women expect to have children. The males of both college samples hope for a median number of three children, whereas the females anticipate a median of four children. It comes as no surprise, therefore, that about two-thirds of both samples view "a childless marriage" in negative terms—as unfortunate, lonely, unhappy, etc. The remainder express the belief that under some circumstances a childless marriage "can be happy." Even this group implies that it is an undesirable state of affairs, but could be remedied by special conditions and circumstances.

Yet in a study on college students, reported some years ago, Rockwood and Ford (1945) found that a considerably greater percentage of women are willing to marry someone who could not have children. These results were obtained despite the fact that women, as compared with men, expressed a desire for larger families. The authors raise the question whether men have a stronger urge to perpetuate themselves, or a greater fear for not proving their virility and not fulfilling the role assigned them by the culture. These data, and the questions they stimulate, raise the problem of comparative strength of motivation for parenthood in men and in women, in addition to the issue of differential motivation delineated earlier.

Another, related item deals with attitudes toward "large families." Positive or conditionally positive ("if you can afford it financially") responses were given by 56 per cent and 66 per cent of the Michigan and New York respondents respectively. Seventeen per cent of the Michigan students and 30 per cent of the New Yorkers considered large families as undesirable; the remainder were noncommittal. The differences between the two student samples are highly significant (p <.001). The New Yorkers are bimodally distributed, whereas a sizable percentage (27) of the Michigan group avoid clear-cut positive or negative responses.

Most directly related to the topic of the present paper are the following two items, included in our incomplete sentences instrument:

"Men want children because . . ." and

"Women want children because . . ."

These are essentially two direct questions as to the motivation for parenthood. Interestingly enough, there were no significant differences in the way the male and female students view motivation for parenthood when the incomplete sentences were phrased in this manner. However, the motives of men and women for having children were assessed differently by the total samples.

The largest percentage of respondents—nearly 50 per cent—considers the male's motivation as primarily narcissistic, involving self-enhancement, self-perpetuation, and proof of masculinity and virility. Typical responses are: "They want to prove their masculinity," or "they want their name carried on and show others they are capable of producing." Only nine per cent of the respondents attributes the motive of "proof of femininity" to women who desire children. However, a majority (more than 52 per cent) attributes to the women an instinctive and predestined function of motherhood which they must fulfill—women want children because "it's natural," "it's their role and purpose in life," or "it is a fulfillment of a basic need."

Altruistic reasons, and needs for succorance, were attributed about equally to men and women. The remainder of the responses were distributed among such reasons as "social pressure," "spouse wants children," and the wish to "have a family" which is essentially a rather general and rather non-explanatory statement. The latter reason was attributed much more to men (23.6 per cent) than to women (14.5 per cent). The overall distributions of the categories of reasons for having children, for men and women, were markedly and significantly different from each other ($p<.001$).

Two more incomplete sentences deal with the expectancies of father and mother relative to their children. Again, we note sex differences in the expectancies attributed to the father. Whereas the males state that father expects his children to be successful and reflect favorably upon himself, the females believe that fathers are primarily concerned with obedience and respect of their offspring ($p<.05$). As to expectancies of mothers, the trend seems to be reversed; the male respondents stress their greater expectation of obedience and conformity, whereas the females consider respect and obedience to be important less often than a variety of other characteristics such as "being oneself," loving mother, etc.

These provisional and fragmentary findings clearly delineate the complexity of the problem. A multitude of motives come to the surface; sex differences appear in their relative emphasis; differential attribution of motives to male and female parents is gleaned from the findings: and, even trends of regional differences in responses may be discerned. Benedek's biological orientation seems to be supported, in the case of motivation for motherhood, to a considerable extent. But, a more socio-psychological motivational source for fatherhood is implied in the results. It may well be that the opinions expressed by these college students are not altogether uncontaminated by the theoretical views we have recounted earlier in the paper. These notions have to a degree infused the culture and attitudes of the educated middle class. Yet, consonant with the projective hypothesis, it is doubtful that these responses represent merely an exercise of a purely cognitive nature. The wide range of differences obtained attests to the personal and individual dynamic elements that contributed, as well.

It is needless to say that we have not even scratched the surface of this multi-faceted problem. We need to devise projective (Forer, *et al.*, 1961) and non-projective methods, as well as interview schedules, which will attempt to assess motivations less readily accessible to awareness and less readily distorted by defensiveness. Thus, the clustering and combination of different motives in an individual can be uncovered following the pragmatic definition of motives as "affectively toned associative networks arranged in a hierarchy of strength or importance in a given individual" (McClelland, 1965).

Essentially, the major hypothesis implicit in the preceding discussion is somewhat as follows: Motivation for parenthood, prior to the birth of the child, determines parental attitudes to a great extent. Parental attitudes may be health-promoting or pathogenic in the development of the child. By studying the relationship between motivation for parenthood, expectancies, and the attitudinal constellation of the parent, it may be possible to identify the antecedents of the influences that impinge upon the child, that bring about health or pathology. If, and when, such a relationship can be established, prediction and, possibly, prevention via therapeutic intervention and modification of the motivational system, may be seriously entertained. The more specific hypothesis regarding motivation for parenthood, based on compensatory needs of the parent, i.e. the expected *instrumental* use of the child and its pathological effects, is to a considerable extent suggested by the available literature. However, a good deal of the evidence stems from *post facto* information and is traced back from observation and inferences concerning attitudes and behavior after the child is born.

As I see it, the following areas would require thorough exploration and study. This is not an exhaustive list by any means, but may constitute guideposts for extended investigation.

1. A longitudinal study of the relationship between motivational variables and expectancies prior to birth of the child, and, the subsequent parental attitudes as revealed via their child-rearing behavior and practices, and, as a function of fulfillment or frustration of such expectancies.
2. Differences between motives and expectancies of fathers and mothers.
3. Comparison between motivational systems of natural and adoptive parents.
4. Readily verbalized vs. withheld and covert motives for parenthood.
5. Shifts in motives and expectancies of parents after the birth of the first child, second, etc. (cf. Lasko, 1954)
6. Further exploration of the relationship between social change and motivation as discussed by Hoffman and Wyatt (1960).
7. Cultural and subcultural as well as social class differences in motivation for parenthood.

Each of these topics constitutes a major research program in itself. But, we need to understand more thoroughly the relationship of the parental personality to that of the child. We need to know the place of the prospective offspring in the "mental economics" of the parent—the expectancies, attitudes and subsequent behavior affecting his link between the past and the future.

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Citation

For his sustained pioneering and indefatigable research and teaching in the field of projective techniques. Throughout a long career, beginning with the first American research report on the Rorschach, 35 years ago, he labored fruitfully and successfully in narrowing the gap between projective methods and the field of scientific psychology. Over many years he has contributed greatly, directly and indirectly, to the science and art of projective techniques and personality assessment, blending successfully the nomothetic and idiographic approaches. In addition, his continuous efforts at delving into the mysteries of personality structure and processes of schizophrenia have been marked by scientific rigor and clinical insight, which have enriched the field of psychopathology.

Award Committee:

Walter G. Klopfer, *Past President*
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September 1965

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Clinical Psychological Testing: A Review of Premises, Practices and Promises

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Summary: Widespread divergencies of opinion exist over the usefulness, the nature, the purpose, and the scientific status of clinical psychological testing. This paper seeks to order these problems in historical and philosophical perspective. Largely different values and orientations have been contributed by traditional American academic psychology, by clinical psychology, and by psychiatry. Academic psychologists advocate a rigorous scientific basis (logical positivism) for testing, which the clinician tends to find overly confining and antagonistic to his humanistic, individual centered, service orientation; while psychiatrists tend to differ greatly among themselves in their understanding of psychological testing and hence exert no uniform influence on the practice. The current trend emphasizes greater sophistication in the academic approach to testing, with advances in empiricism and computer-aided manipulation of data, while the more clinically oriented psychologists seek to strengthen their theoretical position and to demonstrate the effectiveness of their methods through studies of clinical judgment. At the same time basic methodological research to support the "clinical position" is yet too sparse. It is proposed that both academic and clinical approaches have a significant contribution to make to clinical psychological testing. Ultimately the design of psychological tests and the evaluation of their usefulness rests upon what we conceive psychological science to be, and we need to remind ourselves, in this regard, that the conception of science is subject to change.

In 1948, Doctor William Menninger, quoting a colleague, suggested that " . . . the diagnostic function of the clinical psychologist is now so well established . . . that the competent psychiatrist . . . would no more exclude the special techniques of the psychologist in his diagnostic studies than would a capable internist routinely exclude the findings of the roentgenologist." Several years later, with a less optimistic tone, Hoch and Zubin (1952) commented " . . . there is a great diversity of opinion regarding not only clinical usefulness of the tests, but their nature, purpose and scientific value." Such widespread divergencies of viewpoint on very basic issues are more the rule than the exception.

PROBLEM AREAS

Confusion over the very definition of the assessment function of the psychologist reflects varying degrees of certainty about his actual and/or ideal clinical role and function. Similar confusion exists over what psychological tests are, what they have to offer, and their limitations.

Although psychiatry is in great measure responsible for the development of clinical psychological testing because it has created a demand for such services, the psychiatrist is particularly handicapped in learning what psychological tests are all about. A perusal of even the latest psychiatric texts is not of great help to him. The typical text deals with the matter through a cursory description of some of the more widely used tests, emphasizing the assessment of intelligence, and sometimes pointing out the relationships between test results and certain nosologic entities.

The crucial features of psychological test issues are ignored; the complexities not hinted at. Indexing is sometimes under "psychometric testing" — in best usage a much more limited concept than psychological evaluation — though once widely regarded as having an unchallenged position in psychiatry. Thus Noyes and Kolb, 6th Ed. (1963) index this term, including under this rubric projective techniques where the personality descriptions gained through the use of instruments are decidedly preferred to any quantitative properties they may have – which is the more usual way of thinking about psychometrics. Psychological texts on mental measurement also may not be adequately enlightening to the consumer of psychological testing. They tend to present an over-simplified view of psychological evaluation, only the statistics of measurement sometimes appearing to be complex.

Psychological instruments, their applied uses, and guiding philosophies have in many instances changed greatly since the introduction of the Binet-Simon Test in 1905. Adaptation into the psychiatric setting of originally educational materials is one of the major reasons for these changes. Another is the changing role of the psychologist – from score reporting technician to evaluator of personality and psychopathology. Still another is the widespread introduction of projective techniques, and the frank use of impressionism in preference to the more limited possibilities of psychometrics. As applied to projective material, many clinical psychologists now regard tests as mere tools to contribute to their judgment of personality – not means of obtaining ready made answers. With change and development continuing, to assess the possibilities for the effective use of psychologists and their tools, we must examine the assessment function in both retrospect and prospect, considering both premises and practices. This task will trace psychological assessment to three sets of roots, each embedded in a somewhat different soil. These roots are traditional American academic psychology, clinical psychiatry, and clinical psychology. Each is based on different experiences and different expectations of psychological instruments; each has its own developmental history leading to group oriented values and understandings.

PREMISES AND PRACTICES

Traditional American academic psychology

The traditional American academic position underlying psychological testing is well summarized by the single word "science." The various correlates of this position stem from current understandings of the meaning of science, and, of course, scientific method, the *sine qua non* of science.

The watchword of this position is "rigor," and objectivity and quantification are the chief ingredients. The spirit is captured in a quotation from Hume taken from his 1777 essay. An Enquiry Concerning Human Understanding: "If we take in our hand any volume – let us ask, *Does it contain any abstract reasoning concerning quantity or number?* No. *Does it contain any experimental reasoning concerning matter of fact and existence?* No. Commit it then to the flames: for it can contain nothing but sophistry and illusion!"

Coinciding with this approach is the physicalistic model of human behavior, i.e., the idea that ultimately psychology and physics deal with essentially the same data though observed at different levels – the point of view embraced in "reductionism." Since E. L. Thorndike, every psychology student has learned that "If a thing exists, it exists in some amount," and "If it exists in some amount, it can be measured." Referring to human behavior as a *"thing"* or as "it" unequivocally defines the orientation and supplies a rationale for the concept of measurement. Regardless of the specifics of personality theory to which the physicalistically oriented psychologist subscribes, this is a basic approach to knowing the human organism.

Operationalism, related in practice to physicalism, though not necessarily in theory as set forth by Bridgman

(1945), stems from the philosophic school of logical positivism which, after many years, continues to be strongly in vogue with our modern versions of behaviorism-dominated psychology. This doctrine holds "... that terms, propositions, concepts, constructs, and theories are given all their meaning – in the last analysis – by the methods of observation or investigation used to arrive at them, that they have no other meaning than is yielded by the procedures or operations by which the things or processes to which they refer are known" (English and English, 1958). Thus Boring in 1921 suggested that intelligence is what intelligence tests test. After all, what *is* intelligence? Is it "The ability to do abstract thinking" (Terman), "The power of good responses from the point of view of truth or fact" (E. L. Thorndike), "Capacity for making planned responses to an increasing range of relevant stimuli" (Porteus), or any of the myriad of other proposed definitions? Perhaps Boring's suggestion has merit, if only in making it evident that current estimates of a subject's intelligence have no real meaning apart from how intelligence is conceptualized; different tests of intelligence tap, to various degrees, different skills loosely conceptualized together, with imperfect consensus, by the designation "intelligence."

Such is also the case with the psychological variables identified as traits or behavioral complexes. Anxiety, or "manifest anxiety" as it is termed by the author of an assessment method, is measured by a Manifest Anxiety Scale (Taylor, 1953). Introversion (or extroversion) is determined by applying a scale of introversion – extroversion (e.g. Guilford, 1940). Following this physicalistic operational orientation, the psychologist is able to measure and make available results on an almost limitless number of human characteristics; for example, intelligence (closest translation as determined by correlation techniques: scholastic aptitude), or various components of intelligence as identified *a priori* or determined empirically – like vocabulary level or ability to visualize objects in a spatial configuration, neuroticism, airplane pilot aptitude, religious orientation, and impulsivity. In any event, the test yields a measure of a predetermined and circumscribed area of behavior; specific tests measure specific behaviors.

From these premises are derived certain natural consequences. The process of measurement makes it possible to speak about people in terms of numbers (e.g., an I.Q.) and thus to classify people into categories (e.g., the subject is introverted or mentally defective or schizophrenic), or we may compare people with one another: John is brighter than Bill, Jane has more clerical aptitude than Mary. Through standardization – based on administering a test to some particular group (e.g., a mental hospital population) – norms are determined against which a specific subject may be compared. Thus to say that George is of better than average intelligence we mean that his score is higher than the mean score of the population on which the test was standardized.

It is apparent that always we deal with group phenomena and an individual tends to be insignificant in the greater scheme of things. The approach is statistical; prediction, a highly valued criterion in science, becomes possible, but always on a probabilistic basis. Nevertheless, predictive power can be precisely defined. We can express in numbers the validity of a test – how faithfully it does the job for which it was designed – and its reliability (consistency of measurement).

The final point of emphasis in considering the traditional academic viewpoint is the detachment from the situation of the test user (he may not be a psychologist). "The tester," as he is frequently called, is objective and attempts not to intrude his person so as to influence the results. He administers his tests in a standardized way (according to a uniform procedure prescribed for testers). His position is analagous to a laboratory worker who reads the dials and faithfully records what he sees. He measures; he is a psychometrician.

Clinical psychiatry

Compared with American academic psychology, psychiatry presents a less uniform position with respect to psychological evaluation. Psychological practice has been influenced by a variety of attitudes and beliefs held by psychiatrists. What some of the more important of these are may be approached through asking members of this group what sort of data they expect from the psychologist's examination (Tallent & Reiss, 1959a) or by asking psychiatrists open-endedly to criticize the psychologist's report (Tallent & Reiss, 1959b). Occasional explicit statements as in Sadler (1936), quoted below, may also be helpful in learning how some psychiatrists understand the psychologist's diagnostic function.

From these sources one gains the impression that large numbers of psychiatrists are in essential agreement with the views of psychologists in Academia. In particular the concepts of objectivity and measurement are popular and some psychiatrists see the psychologist as a laboratory technician. Thus a psychiatrist complains "There is a tendency to avoid the very purpose for which psychological testing exists. Namely, to present laboratory data codified in its original terminology so that the physician who has requested such testing for his own purpose of treating the patient may add to his clinical estimate of the patient" (Tallent, 1963).

Many psychiatrists are heartily in favor of bringing to bear psychological science on their problems and they confidently seek out psychologists to supplement their own clinical impressions in this way. Some even see scientific, quantitative objectivity as the *raison d' etre* for the psychologist to be on the clinical team. They may be disappointed when the psychologist departs from an objective approach (Tallent & Reiss, 1959b; Tallent, 1963).

The sort of data some psychiatrists seek from psychologists clearly shows a psychometric conception of testing (Tallent & Reiss 1959a). Thus, asked what specific information they wish to receive through testing, more psychiatrists mentioned the I.Q. or the intelligence level than any other feature of personality. Loutitt (1939) points out that many definitions of clinical psychology have made this field synonymous with psychometrics. The position reflected here, in extreme form, has been documented by Sadler: "In recent years the general public, more especially psychologists and psychiatrists, have awakened to the fact that psychology deals merely with the phenomena of the intellect . . . " Similarly, Mitchell's (1934) statement: "Clinical psychology has to do with the examination of individuals to determine the mental level of ability. It is primarily a diagnosis of subnormal states." Wechsler (1944) noted that "In most psychiatric hospitals the primary function of the psychologist is to appraise the patient's intellectual functioning." These are old statements. They are being called back because they continue to exert some influence.

In contrast to the psychometric orientation, perhaps without intention of advocating the abandonment of objectivity, many psychiatrists seek information from the psychologist to which psychometrics can now contribute minimally or indirectly through inference, if at all. They seek such information as a description of the psychopathological process, orderliness of the formal thought processes, relation of intelligence to personality, and the defensive structure (Tallent & Reiss, 1959a). The psychologist may find himself attempting to answer such more or less specific questions as "How does he respond to success?"

"How well and in what manner does he tolerate failure?" (Pauker, 1961) "What steps should be taken in treatment?" (Campbell, 1947). Regardless of the original reason for which psychologists were introduced to the psychiatric setting, it appears that being in that setting and interacting with psychiatrists, they have become alerted to a wide class of problems and been attempting to deal with them.

Clinical psychology

To the extent that the clinical psychologist is involved with the more typical problems of the clinic or hospital, particularly with functions other than simple classification or normative determinations, his views, implicitly or explicitly, tend to diverge from those so highly esteemed in Academia. Why is this so? Why is he so quickly "corrupted" when he departs the halls of ivy? Why is he so ready to discard his teachings, both values and practices, and in so doing possibly frustrate the expectations of his psychiatric colleagues as well?

The story of clinical psychodiagnostics is complex, and continues to increase in complexity. We observe that from the start, clinical psychologists explicitly formulated their goals and had an overall philosophy of their approach that left much to be desired from a rigorous scientific viewpoint. They defined their function sufficiently broadly with respect to relevance to human problems as to make it unthinkable that the mere application of standardized devices would suffice — if for no reason other than that such devices were not (and still are not) available for the task in adequate number.

The interest has been on *understanding* the whole individual and the clinical process has been emphasized over discrete clinical products such as test data. Of the first psychological clinic established by Witmer in 1896, Loutitt (1939) writes " . . . Witmer's method was to study thoroughly the child as an individual; to use tests if they were indicated, but not to be bound by them . . . to keep always in mind that understanding of the child was the goal, not accumulation of data concerning him." And further: ' . . . he has always maintained a cautious attitude toward standardized procedures which, away from his influence came to be synonymous with clinical activity."

A 1935 statement from the clinical section of the American Psychological Association continued to emphasize clinical process rather than a one to one relationship between measurement and conclusions: " . . . clinical psychology . . . aims to define the behavior capacities and behavior characteristics of an individual through methods of measurement, analysis and observation; and which, on the basis of an intergration of these findings with data received from the physical examinations and social histories, gives suggestions and recommendations for the proper adjustment of the individual."

The reasons for the divergence of academicians and clinicians involve ancient problems that are both theoretical and practical. The most far-reaching myth from which we should be disabused is that clinical psychology is a form of applied psychology (Witmer set out to apply psychology, but as the above description of his work tells, this goal was soon compromised as he became familiar with his subject matter). The commonly invoked analogy of the iceberg is helpful here; I.Q.s and aptitude profiles are publicly visible while the practices unsanctioned by the guardians of science, though not well publicized, make claim to the bulk of the psychologist's time.

The reasons for this occupy much of the remainder of this section. But before examining the specifics we should note that even a simple survey discloses a lack of uniform or rational guidelines to practice: laws governing practice, one's theoretical orientation, and the sheer inertia of custom seem to influence the psychologist's role function. (Tallent & Rafi, 1965). What scientific principles or discoveries are being applied then, we may ask. Referring to several of the so called fields of applied psychology, i.e., social, clinical, educational and industrial. Cantril *et al* (1949b) note: "It is especially in fields such as these that one encounters hitches in interpretation because of the huge number of variables involved in the concrete situations that constitute each of the areas of inquiry. When such hitches are encountered, the investigator does not merely "apply" to their resolution some theory he has read in a book or learned from laboratory experiments. To be sure, he brings such knowledge and experience into the process of hypothesis formation. But the chances are very high indeed that any theory which is not itself based in large part upon the understanding of similar full-bodied concrete situations will turn out to be extremely inadequate." A little reflection brings home the fact that clinical psychology following its progenitors, especially psychoanalysis and the dynamic approach in general, the projective orientation, impressionism, phenomenalism, more recently existentialism, and the idiographic or morphogenic approach (Allport, 1962), has created its own methodology, be it science or nonscience. The ways of the mental clinic stem largely from an applied desire to help people in distress.

What are the theoretical tenets of the clinical psychologist? Let us look first at the issue of objectivity. The clinical psychologist is not against it; neither does he enthrone it as does his academic colleague. He invokes objective methods and an objective orientation where he finds them helpful, and he looks about for other approaches when what is so respectable in academic circles is found inadequate to his needs. Thus Forer and coworkers (1961) observe: "The growing supplementation and frequent replacement of objective tests by projective methods in diagnostic work suggests that objective methods leave something to be desired. The price of objectivity is limitation of information, and the clinician feels the need for more and different kinds of information than that provided by objective tests, even though the information be of a lower order of reliability."

To quickly absolve the clinical psychologist we must admit that if he is amiss he has fallen no further from the ideal of objectivity than have those who chide him. Objective methods suitable to the complex tasks faced by the clinician simply do not exist. Let us turn to Bass & Berg's *Objective Approaches to Personality Assessment* (1959) as a survey of the " . . . most recent concepts and developments in objective personality assessment." Before even opening the book we note on the flyleaf that "objective methods are still in their infancy . . . " and that they are "the personality tests of tomorrow." To date, however, the various prophesies on the effective utilization of objective methods have not materialized. Thus Miller (1950), seeing a developing coalescence of neurology and psychiatry wrote, "The results of these developments is that within ten years clinical psychologists may well arrive at their diagnoses not with pencil and paper tests and ink blots alone, but with an imposing array of new instruments which for the first time will really justify calling their place of work laboratories."

Whether the focus is on theory, practice or instruments, numerous workers point out either the shortcomings or the relative nonexistence of pertinent objectivity. Rapaport (1950) notes that "the theory of diagnostic psychological tests is in its infancy" (presumably some maturity of theory is a prerequisite for designing significant objective tools) and that the examiner must use subjective judgment "based as much on his experience, theoretical knowledge and insight as on the objective data." Meehl (1945) comments thus on the "clinical" use of the MMPI: " . . . in the case of some structured tests, a considerable amount of experience and clinical subtlety is required to extract the maximum of information. The present writer has heard discussion in case conferences at the University of Minnesota Hospitals which make as 'dynamic' use of MMPI patterns as one could reasonably make of any kind of test data without an excessive amount of illegitimate reflection . . . " In more recent publications on the MMPI, a study by Kostlan (1954) and confirmed by Sines (1957) showed the value of inferences made from test findings to be enhanced when supplemented by less objective material (like a social case history or personality description supplied by a patient's therapist).

After an extensive review of the variables in projective testing, Masling (1960) conclusively disposes of the oft made supposition that tests are impersonal stimuli. He comments: "Thus, the procedure that many clinicians hoped would serve as an x-ray proves, on close examination, to function also as a mirror, reflecting impartially S, E, the situation and their interactions." He continues: "This need not be a cause for despair, except for those who feel that E and situational influences contaminate a protocol. These influences are not sources of error, however, but indications of adaptations to the task." The examiner is a participant-observer.

The clinician, in seeking relevant inferences, relies on various approaches which merge into one another in the process of formulating a personality synthesis. He utilizes psychometrics, projective theory, constructs, phenomenalistic viewpoints and intuition. All of these, in typical clinical practice, involve a degree of subjectivity. Some of these approaches perhaps function with a lack of an adequate vocabulary to express significant observations. This is in a way unfortunate, not only because objective observation presupposes the capacity to publicly communicate these observations, but even more so because it hampers our systematic study of them. The clinician is painfully aware that limitations of his knowledge in how he goes about his function both hinder his ability to study the clinical process and to make his approach appear plausible to his hard headed critics. Yet he can readily turn to a serious, objective and critical-minded student of the clinical process to gain support for the value of methods and inferences which are not intimately linked with objectivity. For example, let us read Levy's (1963) pertinent words in his book *Psychological Interpretation.* In the first sentence of the book Levy presents what is perhaps a fair statement of the academic viewpoint. He observes that "Contrary to some widely propagated and widely held notions, psychological interpretation does not in any way depend on some arcane wisdom on the part of the interpreter. On the contrary, it can be shown that psychological interpretation . . . follows a small number of principles that can be made explicit . . . ." Then after exploring these principles in detail, in concluding his book some 347 pages later he recognizes the existence of a "personal element which probably no amount of abstract knowledge of the interpretive process can seriously alter, and which may, in the final analysis, differentiate between the successful and the unsuccessful, the mediocre and the brilliant, *application* of interpretation" (italics supplied). Levy calls this element "style," by which he evidently means something different from wisdom. In any event, he feels that "style" "may often count for as much as, if not more than, content in making the difference between success and failure." Giving all due respect to the role of knowledge of the principles of interpretation, however formulated, we have to consider, as have many psychologists and laymen, the possibility that there are some who may be ignorant of such formal principles but who may still be excellent interpreters — *Menschenkenner*.

This view is supported by findings of Forer, *et al.* (1961) and Bendig (1956). The former comment: "Is it, then, a fact that for certain kinds of clinical judgment the variance attributable to individual differences exceeds that attributable to professional training. It seems so in this study. We are forced to agree with Bendig (1956) that individual differences among judges may outweigh many facets of the rating process and the data to be judged."

Clinical psychologists tend, by and large, to reject the physicalistic model of personality. There appear to be several reasons why they find it difficult to see man as just another aspect of nature to be accounted for by the same methods we use in learning about earthquakes, electrical phenomena and horse breeding.

Perhaps the physicalistic model is too concrete and static in its implications whereas what people *really* are — whatever that means — is less important than how we understand them relative to some particular context. In general, phenomenal, existential, transactional viewpoints appear to the clinician to be highly useful. Constructs seem to be more meaningful than what may appear to be some of the more palpable realities. The nature of man is as protean as truth. The physicalistic model appears to the clinician also to be overly gross. Thus an experiment may call for matching 50 "schizophrenics" against 50 "normals," but the clinician feels that in significant ways we are really dealing with 100 different people. The physicalistic-psychometric model, it would seem, is best suited to assessing the organism as an isolated unit — not as a fluid organism — environment interaction. Modern personality study emphasizes the over-riding importance of the field and interpersonal relationships.

Bugental (1964) states concisely the basic reason clinicians tend to reject the psychometric model: "Many psychological tests are founded on man as a relatively simple animal built up additively of units such as habits, interests ,traits or the like." But he adds: "The true nature of man, it is increasingly being recognized lies in the very fact that could one efficiently tally all his habits, instincts, traits and so forth, man would still be something other. Note, *other*, not *more*. Man is the process that supersedes the sum of his part functions." This statement, of course, is the sort so frequently advanced in arguing for the uniqueness of the human organism — the idiographic [or "morphogenic" (Allport, 1962)] approach or the configural nature of personality. Thus we have to consider seriously that much significant behavior is a resultant of a number of factors, many of which are not now assessed or capable of being assessed, even in principle, by present psychometric approaches.

These statements seem to capture the sentiment of those who work intensively with people. It is yet too difficult to communicate this feeling in a convincing way to those who do not share the clinician's experiences. On the other hand, is this feeling any more an article of faith than the belief that man can be understood in physicalistic terms?

The tendency of clinicians to be unhappy with large doses of operationalism stems largely from the same reasons which make him critical of physicalism. That is, the physicalistic-operational definitions of behavior, though relatively simple to deal with, often fall too far from the behavior of clinical significance. In the words of Bridgman (1945), to whom psychological operationalism is so deeply indebted, the operational definition should lead to " . . . a characterization precise enough for the purpose in hand, making possible the recovery of the conditions to the necessary degree of approximation." But as Cantril *et al.* (1949b) point out, psychologists have tended to an "artificial restriction" of operation in physicialistic terms. This, they feel, has tended against the use of constructs and impeded the search for higher-order abstractions that " . . . cannot possibly be 'pointed to' in any narrow operational sense . . . "

We use test performance to infer, for better or worse, what the personality is *really* like. Using the impressionistic approach, the clinician reasons *ad hoc* from performance to *contextually defined* inferences. But with operationally established variables, e.g., "intelligence" or "anxiety," the all-purpose inference is defined by scores and the clinician, ideally, is relieved of the necessity to think further about the matter.

Of course, he rejects the clerical exercise of transferring a figure from the score column to the conclusion column. He is painfully aware that the operationally defined variables are highly oversimplified, sometimes naive, and the implications that these facts may have for the lives of his patients are of the greatest importance. Consider, for example, the concept of intelligence, one of the features of personality most successfully evaluated by psychometric methods. Wechsler cautions that the I.Q. can't be used mechanically. He notes specifically the limitation of using the I.Q. as the sole criterion in establishing a diagnosis of mental deficiency. Although this concept is quantitatively defined (in law as well as in textbooks) and is one of the more clean-cut of our operational concepts, Wechsler (1958) reminds us that mental deficiency is not a simple entity and that it is " . . . not only a psychological but also a social concept."

Operational variables tend to have about them an overly artificial quality. As we know from our respected biological sister science, what is observed in *vitro* does not necessarily occur in *vivo*. There is a significant difference in conditions. The man who thoroughly knows his secretary, in the office situation, may discover her to be an unsuspected different person if he enters with her into a matrimonial situation. There is commonly a discrepancy between operational and clinical concepts, which stems from the necessary ignoral in the former of such factors as transactional matters and the mutual modification of expressed traits in their configural interaction. Operational variables furthermore may be conceptually loose. Goodstein (1953), for example, intercorrelated three measures of "rigidity," obtaining an average r of .09.

The discrepancy between operational and clinical concepts makes it hazardous to pass from one frame of reference to the other. Perhaps this is one reason why so many psychologists become "test oriented" rather than "patient oriented." Particularly when the patient's evaluation drifts far afield from samples of his usual behavior and in the direction of abstractions, like factors, is the translation from test performance to personality inference likely to be difficult. The relatively small number of factors which have been repeatedly identified in independent studies are yet far too few to account for the complexities of personality.

A sophisticated psychodiagnostic science must rest upon the establishment of meaningful quantitative propositions in personality theory. Concerning this requirement, Fiske (1963), in a chapter on personality measurement, offers a discouraging commentary: "In appraising the degree of advancement of a scientific field, one of the criteria that has been proposed is the level of mensuration (Wolfle, Marquis & Sears, 1949).

Against this absolute standard, the science of personality does not fare well." How then can the clinician justify himself as a measurer or psychometrician? All of the arguments which have been garnered against the role given to objectivity and the limitations of physicalism and operationalism, especially the artificiality and oversimplification which they bring to the clinician's task, if valid, seriously challenge the role which has been established for measurement.

To sample viewpoints on the practical meaning of such observations, let us call on three well known students of the clinical scene. W. A. Hunt (1946) advises: "We should rework our tests to obtain items which will yield diagnostically-rich, observable material as well as convenient numerical measures." Zubin (1950) observes that "Beginning with Rorschach and Oberholzer and including the other contemperary Rorschach workers, there is general agreement that the scoring in the Rorschach is intended to yield only symbols of the full-blooded response which are in no way intended to be scores in the same sense as intelligence test scores." He then points out that other tests, for example the TAT, the Word Association Test, Projective Sentence Completion, the Bender-Visual Motor Gestalt Test and the Object Sorting Tests (without these tests and the Rorschach the clinical psychologist is all but disarmed and impotent!) "have not reached even the meager level of standardization which has already been achieved by the Rorschach." Harris (1950) points out what it would mean in practice to rigorously apply quantitative psychodiagnostic research: " . . . positive results can provide the practicing psychodiagnostic tester ground for only such circumlocutions as 'the patient produced a pattern of scores characteristic of patients clinically diagnosed schizophrenic.' Compulsively, he should add a probability statement taking account of the degree of separation of schizophrenics from nonschizophrenics."

The validation exercises carried out by test makers and investigators is fully in the tradition of the physicalistic-operational-psychometric model which meets but a small fraction of the clinician's needs. Yet to the extent that the clinician doggedly and without much reward continues to seek psychometric validity for his instruments he is "playing a game" based on ground rules in which he has no belief. He is merely rising to loud and persisting demands to prove himself, and he attempts to meet these on his challenger's terms.

His frustrating attempts frequently run quickly into the "criterion problem," and perhaps may force the adoption of an unrealistic operational measure. Much of significant psychological observation is at a deep or experiential level which yields conclusions not relatable, perhaps even in principle, to external palpable criteria. With what outside criteria may we correlate the deep fantasies which make man's drives specific? How shall we account for the notion that the observable manifestations of an identified variable depend upon its position in a configuration? Piotrowski (1962) has made the significant observation that much of psychological evaluation is developed at the microscopic level of personality. Can such be evaluated in terms of its correspondence with cruder clinical impressions? Add to this the fact that many psychological findings properly are statements of potential behaviors. In the finest tradition of science these conclusions could be evaluated in terms of their predictive power, except that with practical clinical problems there typically are unknowns in the subject's future environment, and opportunities for observing may be limited.

Even in terms of gross, formally defined matters of personality, i.e., psychiatric categories, the psychologist's "batting average" in his classification attempts has been notoriously poor, for which he has been righteously upbraided. Many of the public chastisements preceded thorough documentation of the unreliability of psychiatric classification, at least as currently practiced (See recent summary articles by Beck, 1962 and Ward *et al.*, 1962).

Ebel (1961), a test maker, has raised the question of worth as being more pertinent than psychometric validity. His article ultimately concludes against this notion, yet we may be sure the issue has not been disposed of.

THE ROADS WE ARE TRAVELING

The traditional academic premises, and the current practices of clinical psychology and psychiatry all continue to exert an influence on the developing picture. The dynamic psychiatric approach, which de-emphasizes formal nosology, continues to pull the clinical psychologist away from psychometrics because the questions asked demand a different approach. Far from being apologetic for this trend, he feels as strong as ever that his approach is "right." He seeks to demonstrate this rightness through studies of clinical judgment. At the same time every effort is being made to implement traditional academic premises. The computer has become a powerful tool in this endeavor.

The developing academic approach

The current emphasis is on the objective and empirical, with prominent representation in the movement by those who are active in the applied clinical area as well as by those whose interests are largely theoretical and academic. Structured tests, like the MMPI, factored scales, and classical psychometric instruments continue to flourish in both research and clinical contexts. New objective schema of personality evaluation have been introduced, of which Leary's system of interpersonal diagnosis (1957) and the factorized system of Lorr, McNair & Klett (1963) for describing and classifying abnormal behavior are perhaps among the most impressive. Even the Rorschach test, the very symbol of clinical psychology, is being scrutinized for its psychometric potential (Block, 1962), and an objective ink blot test is now being marketed (Holtzman, 1958, 1961). A Rorschach atlas assembled with the aid of computers (Thomas *et al.*, 1964) has joined the MMPI Atlas on the bookshelf!

Specifically following Meehl's suggestions for a cookbook psychology (actuarial prediction), advancements are particularly underway with the MMPI which lend themselves to such an approach. Research in this area has already led to actuarial description of abnormal personality (Marks and Seeman, 1963) and Glueck, Meehl, Schofield & Clyde (1964) are seeking to derive an objective, statistically determined interpretation of any MMPI profile.

Pertinent developments in clinical psychiatry

There is little evidence to suggest that current psychiatric practices or opinions are significantly influencing psychological diagnostic testing. What change there is seems to be in the direction of greater acceptance of the psychologist as a diagnostician than was the case (say) 15 or 20 years ago. There is continued active psychiatric demand for psychological assessment, and a large number of studies of psychopathology and related topics cooperatively carried out by psychiatrists and psychologists reflect the psychiatrist's confidence in testing.

On logical grounds, we might suspect that the growing number of existential psychiatrists would be sympathetic to the relatively humanistic orientation of the clinical psychologist. But as Bugental (1964) suggests, tests may be inappropriate in a therapeutic relationship with losses overbalancing gains. Specifically, he emphasizes that tests create an illusion of certainty, measure only fragments with loss of significant meaning, and interfere with and depersonalize the therapeutic relationship.

In any event, psychiatrists' feelings about testing are largely an individual matter, and as such do not foster a systematic trend. Some continue to emphasize objectivity while others are sympathetic to the role of clinical judgment in testing. Still others apparently accept psychological testing on faith or on the basis of experience that it pays off.

The developing clinical psychological approach

There are no recent reports of startling developments in the actual practice of clinical psychodiagnosis. The journals do report refinements of clinical techniques and interpretation, developments of new instruments and modified uses of old ones, some minimally encouraging studies suggestive of the efficacy of clinical judgment, but nothing which has radically hastened the approach to new horizons. Perhaps the last great advance was set in motion by the Rorschach paper published posthumously by Oberholzer (available in English in *Psychodiagnostics*, 3rd edition, 1942). In this paper the psychoanalytic implications of the test were first glimpsed by Rorschach who spoke of ". . . a new angle of the test which may come to have importance in psychoanalysis," a point of view directly contrary to his earlier statement in *Psychodiagnostics* that "the test cannot be used to probe into the content of the unconscious . . ."

Rorschach's late recognition of the psychoanalytic implications of his test had the effect, of course, of raising the importance of response content which he had previously relegated to a secondary position. Clinical psychologists ever since have tended to stray from scoring and the interpretation of scores, and proportionately to rely more heavily on the significance to content, both test content and the content of personal behavior. This practice involves a clinical (intuitive) approach, and, impressed by the feedback, the psychologist has pointed proudly to "clinical validity." Thus flying in the face of academic values and methods, the clinician has glorified what is anathema to his academic colleagues.

This state of affairs has been frustrating to many psychodiagnosticians, some of whom have sought greener pastures in other psychological activities, some of whom are half-heartedly committed to their work, who engage in research incorporating the academic ideals, or who look to the day when academic psychologists will deliver a new armamentarium of diagnostic tools. Many clinicians have been reciting the sort of arguments summarized here in the section headed *Clinical Psychology*, often in the manner of defending their reason for being. One may now detect a more positive feeling tone [e.g., Walter Klopfer's (1962) presentation of the scientific nature of testing] in the recitation of such arguments, bolstered by the development of more convincing theoretical positions to support the approach to which they remain committed, or in the seeking of empirical evidence for the soundness of clinical psychodiagnosis. The latter tend to emphasize the role of clinical judgment, and we may hopefully look forward to a pattern of meaningful results from studies in this area.

New theoretical positions re-examine the traditional roles of test validity and reliability. The latest technical recommendations of the American Psychological Association which incorporate broader views of validity than that held by the early testmakers have enhanced the clinician's position. In particular, construct validity is seen as highly meaningful to clinical practice and is elevated by Loevinger (1957) to the position of the one true validity. The role of prediction is downgraded from its historical position of scientific royalty. Thus consider the following quotations, respectively, from Cantril *et al.*, (1949a) and Niebuhr (1958): "While the accuracy of predictions is clearly a most important criterion of progress in scientific formulations, emphasis on prediction alone can easily obscure the more fundamental aim of science covered by the word *understanding.*" "It is impossible to predict future historical events accurately upon the basis of analogies with past events not only because the unpredictable freedom of the human actors and creators enters into every historical event, but because this freedom creates a tremendous variety of dramatic patterns which render all analogies inexact and all recurrences scientifically dubious."

The appropriateness of validity studies has also been challenged in terms of the role of psychodiagnostic evaluation, which itself is being reconceptualized. Stated simply, the question is "What sort of clinical information is needed (The answer to this apparently simple question is not yet at hand and has hardly been investigated), and can the psychologist supply it?" Thus Payne (1958) comments, "... the practice of validating tests solely against psychiatric diagnosis is pointless," and "tests should be directly validated for the purpose to which they are being put. In clinical psychology tests are usually used to provide a description of the patient, to provide a prognosis, to suggest a treatment, or to suggest some aetiology."

This writer notes elsewhere (1963) Cronbach's (1960) adaptation (See also Cronbach & Gleser, 1957; Hewer, 1955) of Shannon's (1949) view on "bandwidth and fidelity" as derived from information theory: "Narrow-band instruments with high fidelity (more typically psychometric than impressionistic devices) are seen as best suited '... for making final irreversible decisions about important matters (e.g., scholarship awards)' — which is not a clinical psychological procedure. Wideband procedures are seen as suitable for scanning 'superficially a range of important variables, pointing out significant possibilities for further study.' In this manner the wideband procedure is used for hypothesis formation, not for final decision. One possible definition of the psychologist's job might stress a survey activity in the general sense of 'a critical inspection or examination' (English & English, 1958) as opposed to measurement and clear-cut prediction-making."

Cronbach points out that the "classical psychometric ideal" would be an instrument with high fidelity and low bandwidth. He hastens to point out that projective and interviewing techniques are at the opposite extreme. It follows that ultimately we must decide if there is a legitimate function for techniques with such characteristics of bandwidth and fidelity, and utilize suitable means to establish their validity or worth; not invoke validation techniques which are suitable only for narrow bandwidth techniques.

In a similar challenging vein, here are an additional three recent statements contributed by psychologists. Schafer (1954) writes: "Ultimately it is more important for therapy and prognosis to define the personality context out of which the patient's symptoms have developed than to classify or predict his particular symptoms. Thus it is more helpful to be able to identify extensive reliance on repressive defenses or mixed defense then to predict the clinical diagnosis hysteria." With specific reference to projective tests, Dana (1962) notes that they "... were not intended primarily as psychodiagnostic instruments, nor as predictors of discrete outcome variables. They were designed to facilitate the conceptualization of an implicit network of hypothetical relationships among personality characteristics of one individual. Predictions are made from this network to a variety of relevant behaviors in which the clinician may have interest." Less formally stated, this means that the clinician searches for *understanding* as a basis for reaching major and minor decisions as they are called for. A statement by Rosenwald (1963), recognizing the long noted dearth of external criteria against which to validate depth psychological findings, is boldest of all in declaring the clinical psychologist's independence from traditional validation procedures: " . . . it (the psychological report) may provide information which is perhaps not directly confirmable in any other way at anytime." Perhaps such data are the ultimate criteria and not as fully available through any other means.

The reliability question has been succinctly minimized by Symonds (1949) who was of the opinion that reliability loses the significance traditionally assigned to it when the task moves away from measurement and in the direction of description. To which add the changeability of behavioral reactions, an everyday clinical experience. A test which accurately mirrors personality should show low or moderate test – retest reliability with respect to those aspects of behavior which are expected to be changeable.

Such views are of interest for their recent rate of development and because of the vehemence with which they are being advanced, but also because they are being reinforced by a strange appeal to authority. Thus the quote by Levy (above) on the "personal element" in interpretation, be it "style" or wisdom or whatever, is the sort of argument clinical psychologists have been using all along. Meehl's (1959) observations on what the clinician can do well, plus his 1949 statement on the clinical use of structured tests (quoted above) are highly valued for their contribution to the psychodiagnostic "cause." Similarly with recent statements by Marks & Seeman (1963) in their book on the actuarial description of abnormal personality: "The way in which the *Atlas* actuarial data are used will, of course, be determined to a large extent by the training and sophistication of the user," and " . . . it is certainly our view that the ultimate responsibility does devolve upon a highly trained professional person." Such appeals to authority have no scientific validity, of course. They are merely presented because they are of interest since they are the firm conclusions of leaders whom most clinical psychologists would regard as being in the academic tradition and who have been scholarly in their research on the psychodiagnostic process. A *fortiori* when emphatic statements of support for such (as yet) scientifically elusive qualities as the clinician's sophistication derive from research on actuarial methods whose avowed purpose is to replace the clinical psychologist diagnostician with a secretary (Meehl, 1956).

Finally, the clinical psychologist is now forcefully conceptualizing his role in terms of social responsibility and relevance to a problem (e.g., Towbin, 1964). The notion that justification for his diagnostic practices must be sought solely in scientific values and procedures is being rejected. An intertwined complex of science, art and social purpose is seen as the just basis for his practice, and the ethic which gave rise to the classical approach to validity is being increasingly incorporated in an assessment of the *worth* of clinical psychodiagnosis.

CONCLUSION

Psychological testing is now well over a half-century old. From the beginning there have been marked variations in the philosophy on which testing is based, both with respect to the technical construction of tests and the useful purposes to which they might be put. Academically oriented psychologists, those clinical psychologists whose primary loyalty is to the problems of the clinic, and the consumers of test results may have widely differing views on these matters, and the scholarly among them may differ on the crucial underlying premises as well. How then shall we understand the lusty and continuing growth of psychological testing in which those of highly different viewpoints participate as developers, testers and consumers?

Perhaps the common denominator has been the observation of the usefulness of clinical testing, and this largely at the anecdotal level. Certainly classical approaches to test validation have not led to impressive results; the greatest triumphs of psychometrics, those which inspire confidence in the "rightness" of the method, have been in areas other than in the clinical assessment of personality and psychopathology. The physicalistic–nomothetic–objective philosophy is generally thought of as antithetical to the impressionistic–configural approach of the clinician. Hence to accept one viewpoint has generally meant that the other viewpoint must be rejected.

Yet, whether academician or clinician, if the psychologist will ignore his preoccupations and loyalties to group viewpoints he can see merit in the approach of the other group. Clinicians find psychometric techniques useful in assessing both intelligence and the general personality. This includes the use of totally empirical methods. The academician, without dropping his critical attitude can make observations such as "The literature contains a great many impressive case reports in which clinical analyses agree strikingly with other data on the individual" (Cronbach, 1960). Such remarks should be regarded as lending encouragement to the seeking of a better understanding of the impressionistic method, not as conclusive evidence.

Thus the wedge that separates academician and clinician is not the inapplicability or failure of either approach, but of the obvious need for, and the relative success of both. Unfortunately, by extrapolating success, by feeding on the "rightness" of their own ways of thinking, each group has confidence that ultimately its methods will prevail. Certainly the clinician is aware of the success and the potentialities of psychometrics; he uses various psychometric instruments. The academician has to admit that impressionism has produced notable successes, if only at the anecdotal level. Such positive achievements, stemming from different methods and philosophies, thus cannot be dismissed as "wrong" or as if they do not exist. Their importance can be minimized, however, by one of antagonistic persuasion on the grounds that they are not *satisfying* in accordance with his basic beliefs.

A psychologist committed to rigorous quantitative validation can hardly be expected to settle for anecdotal validation. Nor can the clinician be gratified by such empirically derived insights about his patient as "Is afraid of emotional involvement with others," "Has inner conflict about emotional dependency," "Has inner conflicts about sexuality (Marks & Seeman, 1963). Research at this level (utilizing both phenotypic and genotypic language) has also demonstrated ". . . that the descriptions for men and women of a given code type could not be differentiated statistically" (p. 67) *(Vive la difference?)*

Even if a clinical psychologist accepts the methodology by which such descriptive items were derived, he cannot be content with their appearance out of the natural configurational context. He sees such formulations as too pat, and at the risk of boring his listeners is constrained again to point out the complexity of behavior. Such items are still too general for the clinician, and even though they be descriptively true of a patient, in some of the crucial areas where the clinician must tread, e.g., fantasy, deep constructs, he may just find that "inner conflicts about sexuality" can be protean, and vary importantly in implication. The high mark of empirical description, as just illustrated, is a vastly different currency from what the clinician deals with in his intimate diagnostic and psychotherapeutic contacts, particularly those at the deep phenomenological and existential levels.

But always we must return to basic differences in orientation. Any description of the academic approach must emphasize the academician's concern with methodology, particularly with classical methodologies which have *worked* in other areas. The basis for thinking by analogy is reasonable enough. The clinician, by contrast, must concentrate on the clinical context which is his daily fare. He is continually reinforced with the variations in form of human behavior which lead him to a virtual preoccupation with what he sees as *importantly* unique. Nevertheless, he has neglected the development of methodologies appropriate to his needs [Allport (1962), for example, has given suggestions here] or has tended to accept classical methodologies uncritically.

If clinical psychology is to develop further, content cannot be ignored. It must, in fact, be more emphasized than it is today, because at present we do not have an adequate understanding of most of the personality variables in terms of their clinical pertinence (for example, many clinicians, psychiatrists and psychologists, agree that we have been wasting, and continue to waste much time in the attempt to predict psychiatric classification — long a favorite criterion against which to validate psychodiagnosis). Nor can large numbers of clinicians continue to ignore methodology to the extent that has characterized the past. It is necessary to do more than repeat and refine the tired old arguments (pretty much summarized in this paper) which seem to be attracting few new takers.

More research along present lines will undoubtedly continue to enhance the value of both the clinical and academic approaches. Perhaps what needs to be better recognized is that both approaches and their philosophical bases have significant contributions to make. Such a synthesis is proposed in Holt's "sophisticated clinical" method (1958). To be sure, a new conceptualization of clinical psychology may involve some broadening of the concept of science, to include, so far as the psychologist is concerned, the idiographic science, for which Allport (1937) has so long argued.

Clinical psychologists must question the scientific status of their function very much as Rollo May (1961) has done with respect to existential psychology. He concludes: "The existential psychology position is, in my judgment, not at all antiscientific. But it does insist that it would be ironic indeed if our very dedication to certain methodologies in psychology should itself blind us in our understanding of human beings." Stated in simple, direct language by Helen Sargent, "Science offers more leeway than graduate students in psychology are permitted to realize." From such advanced thinking may come the recognition that, in terms both of principle and feasibility, there is a legitimate need in personality study for both physicalistic and subjective methods (cf. Allport, 1937, 1964).

More specific to the present theme, the design of psychological tests and the evaluation of their usefulness is ultimately dependent on what we conceive psychological science to be. Both physicalistically and humanistically oriented psychologists can subscribe to this. Thus, from Boring (1955): " . . . truth in science, as S. S. Stevens has pointed out, is simply what competent opinion at the time in question does not dissent from. In a physicalistic era, we, physicalistically minded scientists, choose a physicalistic definition of the *Zeitgeist*." [Allport (1937) reaches the same conclusion, though in blunter terms. He simply observes that science is "an arbitrary creed."] What has been uncompromisingly advanced as the scientific basis of psychological testing may be more ephemeral than what is readily conceded by its advocates.

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Process Analysis: A Tool In Understanding Ambiguity In Diagnostic Problems In Rorschach[1]

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Summary: Process analysis of Rorschach material was defined, illustrated, and used to delineate differences between the nature of data obtained in different varieties of diagnostic assay. It was suggested that failure to take into account distinct differences in sources for data contributed to confusion about diagnostic decisions among different disciplines. The Rorschach experience may allow symbol formation to take place, whereas, in interview techniques, symbolic inferences are made from a subject's answers to questions about formal adaptivity. Identification of the processes that surround a subject's conscious reactions to the formation of a symbol may sharpen our awareness about a subject's inner state. Optimal use of both psychiatric and projective data should include a clear understanding of the differences in the nature of the materials obtained and their sources. Attention to these parameters may improve our decisions and predictions.

Too often, Rorschach workers are expected to solve ambiguous diagnostic problems in a fashion that clears away the ambiguity and produces a definitive, preferably unitary diagnosis. This expectation may hold even though the individual who made the referral may have a flexible approach to nosology. This attitude toward diagnosis made from Rorschach may not be realistic in terms of the actual inner state of the patient at hand. Ambiguity in projective findings may be an accurate reflection of the psychic states in which shifting trends may be confusing for purposes of nosology, but which may nevertheless accurately reflect conditions existing in the inner world.

Many individuals recognize and talk about borderline conditions, but do we have enough understanding about the process going on in such conditions? Frequently, we think of a borderline condition as one of transition, a state not an entity in itself, but something assumed to be moving between more discrete categories. We forget that this is no more than a theoretical assumption. Yet, we tend to label the patient in terms of the characteristic kinds of data that tend to predominate. Perhaps we can do little more in our present state of knowledge, but close examination of seemingly transitional processes may sharpen our diagnostic understanding about such conditions.

The purpose of this paper is to provide a framework for observations of the processes going on in Rorschach examination of cases with ambiguous diagnostic qualities, to underscore their significance as projective data, and to call attention to symbol formation in this kind of context. Rorschach provides one of the best methods to catch these processes in a net and examine them at leisure.

If one views a Rorschach examination as a life experience involving both subject and examiner, and thinks of the coming about of a Rorschach image as the result of a particular process taking place in the subject in a highly specialized setting, would it not be as fruitful to investigate the process taking place as much as the image itself? Skilled workers do this in implicit fashion during interpretation, but our purpose here is to focus specifically on the processes taking place themselves. The nature of any given process is elusive, and it is seldom that a subject has any valid awareness about what has taken place. More likely, the subject tends to rationalize or become defensive about his images. When a patient is known not to show psychotic symptoms on a behavioral level, and then produces peculiar or bizzare Rorschach material, we tend to assume that repressed material has "emerged." Psychoanalytic theory has conditioned this assumption. This is not to say that such has not been the case, though there are times when one may question it, but just what then do we know about this "emergence process?" We act as if identifying what we have called "emergence of repressed material" explains the process. What is it in the nature of neutral, colored, or achromatic ink blots that allows this to happen? Ambiguity in stimulus material alone is not sufficient to explain the complexity of the material often produced. There must be just the right degree of ambiguity combined with facilitating determinants (color, shading, form) to provide an unconscious reaction which may be useful. Because the proper conditions were available, the Rorschach experience enables symbols to appear. Those adept with the technique take this as a matter of course. However, we tend to merely assume that a symbol has emerged and then get busy and interpret it, giving little thought to how it may have come about.

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[1] Based on a paper presented at the VI International Rorschach Congress, Paris, France, 1965.

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The term symbol formation is not used here to mean a conscious, ideational effort to condense the meaning of an entity into some other simpler media having comprehensible form. Idiographic writing would be an example of conscious effort to produce symbolic representations. Further, we do not merely mean that symbol formation represents the emergence of a complex in disguised form. The symbol itself may not be "repressed material," but a messenger reporting on the nature of an inner state which becomes embedded in the intrinsic qualities of the image. Here, we are following Jung's (1959) concept that a symbol is the best possible expression for an unconscious content whose nature can only be guessed, because it is still *unknown*. Given the proper conditions, a Rorschach image simply "happens," due to the confluence of ambiguous stimuli and the reaction of inner processes. It becomes a projection or message about what the conditions produced. We know very little about what inner conditions may be, but we can talk about the nature of the external stimuli, and we can deal with the symbol that appeared. It may be that Rorschach as a technique does not provide sufficient parameters to completely grasp the nature of symbol formation, but we may gain considerable knowledge by giving close attention to what processes appear to be associated with symbol emergence and to treat them as important dimensions of projective data. Not all Rorschach images are symbols (popular responses), and some responses may appear which are unrelated to the blot contours. Yet, even with commonplace images, we can identify and interpret some of the processes which accompany the response. Considering this process itself may offer vital clues about the psychic structure of the individual.

If one wishes to understand the processes taking place in a subject under Rorschach examination, the differences between this variety of investigation and other types of diagnostic evaluation must be considered. The writer (1962) has pointed out some of the crucial differences between types of diagnostic evaluations in another paper. Forer (1950) gave cogent consideration to some of these qualities in discussing the problem of latency and Rorschach material. Relevant points will be mentioned here. Rorschach tends to extend the range of stimulation from familiar experiences to unfamiliar ones. Interview techniques tend to focus on questions associated with the patient's formal adaptation to life situations. While both forms of investigation have as goals obtaining clues about the inner world, it is not often that interview methods provide the ingredients or stimuli which allow symbols to appear. In Rorschach, no formal questions are asked about the subject's adaptation to life. Only vaguely formed ink shapes and colors provide focus and direction for the perceptions and reactions of the subject. Cues or guides to behavior are not forthcoming in the Rorschach situation. The subject must seek them within himself. In other words, the response-field is relatively open when one looks at a Rorschach card, whereas in interview, a question narrows the range of response possibility. This is not to say that interviews do not stimulate rich and illuminating material, but they may not provide the context for symbol formation. This distinction between methods of obtaining diagnostic materials is exaggerated for purposes of clarity and to underscore the fact that different kinds of stimulation tend to elicit materials that are differently determined in a given subject. Assuming that symbol formation does take place in the Rorschach, it is not easy to conceive of a similar process happening in an interview session. Perhaps the range of conscious awareness about the stimulus must be diminished before genuine symbol formation can take place. In an interview, a subject may comment about someone in such a way as to allow the examiner to interpret it as containing symbolic attitudes, but this is an inference about material that may be unconscious, while, at least in some cases in Rorschach, a symbol appears itself in the form of an image. The nature of the interactions between a subject's psychic processes and ink blot stimuli constitute the fundamental difference between interview and Rorschach methods. At least in the set that is offered the subject, interview techniques are more focused on outward adaptiveness, while Rorschach lures the subject more directly to an inward subjective experience and provides us with some information about what happens in this process. To some extent, this has been a restatement of what many of us know, but many design experiments or expect answers about diagnosis without considering the nature of what has been found in relation to the nature of the stimulus that provided the material. Much misunderstanding can occur without giving consideration to the sources of the material we obtain.

One way that theoretical concepts may interfere with grasping the features about the process of image formation is to assume that Rorschach images are "latent" material. In Rorschach, conflict, dynamic facets, and other constellations in the content material may reflect latent qualities, but are peculiar logic, bizzare expressions, and other anomalies "latent" any more, since they have occurred? Peculiar associations are not in themselves material still existing in deep layers: they have happened. Their relation to "deep layers" may be another issue altogether. One should not ask is this bizzare material "latent," but rather, what was the nature of the stimulus and a corresponding process in the subject when this kind of data came into being or no longer remained "latent?" In Rorschach, we have the advantage of watching psychic processes occur without the examiner having influenced the conscious direction of the proceedings. The presence of the examiner exerts an influence, but he does not provide the patient with a conscious push in any direction. In the main, a reaction takes place between stimulus and subjective experience in the subject. This enables the subject to identify the stimulus in his own terms. Conscious processes in the subject tend to be in less direct control, and awareness or conscious judgment tends to be brought to bear by the subject *after* the image appears. Not infrequently, the subject's own images surprise him, and it is at just this point, the confluence of image and conscious reaction, that we get information about the *process* of interaction between subject and image. An analysis of this process may tell us a great deal about the relation between the conscious and unconscious worlds belonging to the subject. Even during the inquiry about an individual's Rorschach imagery, in questioning the subject, the examiner makes a concerted effort not to influence the conscious processes in the subject, but to merely direct attention to certain facets of the image. Rorschach procedures more or less reverse the processes that take place in an interview. In the latter, the subject consciously focuses on a question, and conscious decision takes the lead. Thus, it should be apparent that in Rorschach we are dealing with somewhat different dimensions of psychic processes, and one would expect qualitative differences in the kind of data obtained. Neglect of this knowledge often results in confusion about diagnostic judgments when one may be comparing data obtained by different techniques used to investigate inner conditions in a subject.

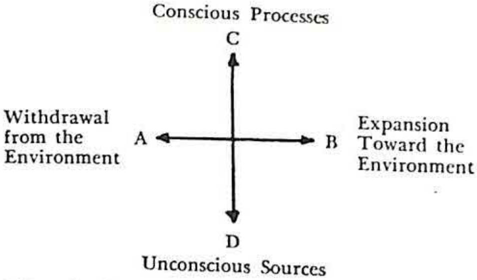
For purposes of delineation, we will focus on processes taking place in so-called borderline conditions, since these cases frequently have ambiguous diagnostic qualities. Further, borderline patients are often more open to inner processes, hence the processes can be more readily identifiable.

One way to identify the events taking place within a Rorschach examination is to make what the writer (1962) has called a "process analysis." The distinguishing feature of this kind of Rorschach analysis is its focus. It should not be considered a new way of analyzing Rorschach material. It is an attempt to isolate some of the factors that experienced Rorschach workers tend to utilize in making interpretations. It is a particular kind of focus in the analysis of sequence through Rorschach. It is not identical with sequence analysis, but more specifically an analysis of the linking conditions that contribute to the nature of the sequence. It is a result of asking what process is going on in the patient at this point? To be sure, it overlaps with content analysis, but more especially, it is an attempt to isolate and interpret the process the patient uses in structuring and integrating "whatever emerges or becomes incorporated into conscious awareness." To accomplish this, one must make defenses, dynamics, and other ordinary foci in Rorschach interpretation peripheral for the moment. We must change set, for our usual set may obscure identification of processes. The focus here is on what the individual is doing at any one time and its relation to the whole, a subtle use of symbol interpretation in the realm of what the patient is doing. This focus is not independent of any other Rorschach feature (dynamics, defenses, symbol, intellection), but it represents an effort to draw attention to the qualities of what the individual experiences as he goes through Rorschach material, and to interpret these experiences as another dimension of symbolic material. When we use familiar modes of analysis, like referring to the nature of the subject's defenses and classify them as such and such, we mask just what we want to know by the use of stereotyped terms. Often, by the use of stereotyped terms. Often, our terms don't explain processes, but merely describe results.

It is useful to describe a schema or theoretical framework against which dynamic processes may move. This schema reflects something of the differences in emphasis between Rorschach and interview techniques of analysis or investigation. It can be used as a rough frame from whence to judge possible spheres of movement in what may be referred to as the disturbance process, and corresponding adaptive process in borderline conditions.

One may conceive two planes, one horizontal and the other vertical (see Figure 1). The left side on the horizontal plane designates the tendency toward withdrawal from outer adaptiveness, while the right side along the same plane designates movement toward adaptiveness with the environment. The focus within an interview technique tends to elicit pertinent responses along the horizontal plane. This is to say that an interview based on questions and answers uses social adaptiveness as the vehicle of investigation. From this, dynamics and symbolic materials are inferred. The upper end of the vertical axis represents the extent of conscious awareness and conscious processes, while the lower end of the vertical axis represents unconscious processes and associated activity. Processes which take place in Rorschach examination tend to move along the vertical axis more than on the horizontal one. In this kind of movement, direct symbols are more apt to emerge since the stimulus material, vague ink blots, stir up processes which differ in kind from direct questions. Here, social adaptiveness and factors dealing with formal adaptiveness are inferred. Hence, we have a kind of reversal when we compare the sources of data obtained from interview and Rorschach examinations.

FIGURE 1


Conscious Processes
C
Withdrawal from the Environment
A
B
Expansion Toward the Environment
D
Unconscious Sources

AB axis designates a movement sphere reflecting the degree of formal adaptiveness.

CD axis designates a sphere of movement between conscious awareness and symbol formation.

The movement in the disturbance or adaptive processes may occur anywhere along these axes; they may vary from one moment to another, or they may cluster in certain areas. We may make a rough analogy with the Rorschach cards themselves. That is, upper, lower, left, and right areas of the blot outlines, and in terms of the positions in which the cards are held.

We will now look at several Rorschach images in an attempt to identify something of the process taking place within the subject, an adult female.

Let us now look at this material from the set we have proposed, focusing on processes taking place and their symbolic bases. Card I provides the stimulus for an easily perceived popular image. The subject experiences the blot primarily in terms of what is combined and what is separate. This process of experience is probably based on an inability to tolerate separation between the two sides of the blot, a symbol of lack of separation between the two sides within her psyche, left and right. Lack of differentiation within determines the lack of differentiation without. The image follows the same determinant, the figure consists of twins, born together, unseparated. Symbolic processes have formed around stimulus material that triggered the experience of lack of development or differentiation within the subject. The strength of this process is shown by the subject's rejection of a more rational and infinitely more conventional image, a bat. There has been an inner movement, material from below (unconscious) has moved up and determines the subject's conscious reaction. She is not unaware of the obvious (form of a bat), but she rejects both the image and thoughts about accepting it at face value. It is unlikely here that any of this is taking place because the patient has any specific ideas about bats. She tells us why it was not a bat to her during the inquiry, and the reasons are determined by the process she experiences, not the content of the image. Forces that wouldn't have occurred outside of this kind of stimulus determined her experience. When she actually tries to separate her image

CARD I

RESPONSES	INQUIRY
∧ It looks like it could be one animal combined together. It could be Siamese twins. It could be a bat, but I don't think so.	It just looks like two animals born together. I wouldn't know what kind. Well, it sort of looked like a bat because of the little wings up here (means usual hands, central projections). (Q-What about this part? — meaning the outer large Ds or usual bat wings) I haven't the slightest idea, they could be wings for all I know. It's possible that each one is a bat (each half of the card), it's very possible they could be having intercourse, but I doubt it. (Q-Could this whole thing be a bat?) I doubt it, because the wings are too far apart.

CARD II

RESPONSE	INQUIRY
∧ Two animals combined together with their beaks. They could possibly be having intercourse. Don't know what this is (top red).	(Q-What makes them look like that?) Well, the connections here (above) and here (below). Wouldn't know what kind.

CARD III

RESPONSE	INQUIRY
∧ This could be a man and a woman, and I doubt if this would be the breast (center red).	Well, a man and woman that way. (Q-top red?) Don't know. (Q-Having a relation?) The connection down here, but the faces are too far apart.
Or it could be two animals, but they're exactly the same. It's possible they could be having a relation.	(Q-center red?) Breasts or could be a bow tie. It's impossible to tell if it's a man or woman.

into parts (could be two bats) her judgment evaporates and she gets confused about what could be and what couldn't be the wings of the bat or bats. The process of separation itself throws her judgment askew. This is so strong that even when she is asked to respond to the obvious (large wings, side Ds), she fails to recognize it. Unconscious needs have found their vehicle in the symbols of what is combined and what is separate, hence, when she is asked if the whole card could be a bat, she says no. This seems to be because the concepts of separation and combination determine the nature of the image. We have not spoken of the sexual aspects of the image purposefully, since we have wished to look at the process apart from affect. Undifferentiated sexuality plays an important role, but we are not, at the moment, looking at specific dynamics. We see no movement here which suggests any social concern or interest in outward adaptation on the part of the subject. The concentration of processes occur on the vertical scale alone. She even rejects considering that the image might look conventional. In substance, Card I has provided us with the information that the patient is highly sensitive to a process related to things being combined and separated, that an image is formed which contains an aspect of this process within it, and that these factors within her are more predominant than her adaptiveness to what is appropriate or conventional around her.

Card II shows us that the processes described in relation to Card I continue to manifest themselves. The blot contours are different, but we get much the same image, refitted to this blot. The presence of bright color doesn't alter the process. Color can serve (an emotional challenge) as an invitation to express something in relation to adaptiveness to others (our horizontal axis), but the patient does not involve herself with it. The symbolic material continues to focus around connection, fusion, and the lack of freedom to tolerate separation. We may assume that separating the two sides of the blot is blocked by an unconscious state, and this determines the nature of the image. She is sensitive to the fusion of aspects of her image, and remarks that this takes place above, and below on the blot. This is an expression of movement on the vertical axis. While on this card, two animals are appropriate to the stimulus, and represent conventional figures, neither their position nor possible activity are conventional. Unconscious factors predicate conscious judgment, suggesting that process activity centers more about unconscious factors than about conscious judgment of the image. Again, the sexual implications about the image are clearly stated, but this is an assumption the patient makes because of the fusion or connectedness of the images. Absence of separation in her images means something sexual to the patient, but the symbolic vehicle is perceiving something connected, and it seems to be this that touches off a complex in relation to lack of differentiation or the lack of inner separation, which then is vested with sexual implications.

Card III shows us that the processes taking place in the patient are much more powerful for her than blot contours or her percepts. Experience related to differences and likenesses, separateness, and connections have become personal symbols for her. The unconscious needs underlying this infuses her logic and determines the nature of her image. As with Card II, the figures are conventional and, as such, reflect some involvement with placement on the horizontal axis, but she stops there, since one sees no signs of outer directed adaptiveness. This time, she makes a conscious effort (upper vertical zone) to make the two sides of the blot stimulus different (one male, one female), but this is not in the stimulus, in which the two sides are exactly alike. Here, she cannot tolerate the sameness in the two sides, a symbol-message of another facet of the lack of differentiation within, but she reasons about or questions her own response. Consciousness makes a weak attempt to assert itself, but when this happens, almost at once her judgment becomes highly unrealistic (showing the much greater strength of unconscious forces) and she comments that the center red area could be a breast. The center red area is physically separate from the rest of the blot. Actually separating something from her image succeeds in separating the patient from her judgment. Here, we have an example of material that is appropriate to the horizontal axis (the red as a feeling challenge and her comment that it might be a bow tie, an adaptive observation) being virtually pulled into the unconscious like a magnet. The result (her report of the center red as breasts) is not only unadaptive, but bizzare. She simply can't come to terms with her image as long as she can accept the two sides as being identical or the same. The animals, an instinctual image, carry the symbol of the fused or undifferentiated instinctual life within, and this has been a major determining factor in the process of what went on and represented the roots of her dilemma. When viewing the figures as human, she could not accept them as the same or exactly alike. This is an example of homosexual shock, but the underlying determinant is lack of differentiation, now projected by this symbol. Separation and connectedness, again shown directly in her remarks, touched off a process in the patient, and related unconscious factors rule the day. This appeared strongest when the patient reported breasts for the center red detail. An important aspect in understanding this process is to keep in mind that the patient "doubted" that the center red could be breasts. This is an example of an image appearing and the subject rationalizing or remarking on it. The existence of this kind of experience is a function of the nature of the Rorschach as an examining instrument. It would be difficult to think of another way to produce this kind of experience. She may have attempted to suppress the idea, but the image emerged. It did not remain latent, it happened. The process surrounding it provides valuable insights. First, there are perfectly acceptable breasts on the figures themselves. Second, she is even aware of the popular reaction to this area, a bow tie. Experience of breast in relation to her image interferes with her need to see two different sexes, regardless of how the blot is formed. Two figures with breasts are an intolerable idea for her, especially since they were seen as connected below. Yet despite considerable evidence for much conscious effort, something moving from below to center was so powerful, despite her awareness that it might not be appropriate, that she reported it. Her experiences with Card III stirred up inner processes centering around her problems about separation and differentiation, and they drew her into making inappropriate judgments. Exactly the same thing happened on Card I. When she tried to *separate* the blot into parts (could be two bats), her judgment became separate from logic and she couldn't recognize that the whole blot might be a bat, and even confused what might be wings. This is what we mean by process taking place in the subject. The same process happened twice. While she associated sexual qualities with both these images, the underlying process involved the attempt to separate aspects of the blots that looked connected to her or were related to the idea (or symbol) that would connect blot areas (first, two bats where one is usually seen, and second, connecting breasts to figures with a blot area physically unconnected with the image).

In the main, this is a patient who shows much activity along the vertical axis of our schema. She is not unaware of stimuli that would connect her with others (horizontal, outer-adapted axis), but she does not get involved with movement along that plane. Yet, in an interview, she did not show unequivocal psychotic thinking. She made appropriate responses to questions quite aside from the Rorschach evidence that her energies did not flow into adaptive behavior. The interviewer felt she was disturbed, but obtained no concrete evidence to document it. In looking at the processes taking place in Rorschach examination, we saw a great vulnerability to being flooded by unconscious determinants, but she made efforts to check this by bringing conscious judgments to bear. At times, she was grossly unsuccessful, and poor logic held sway.

By using a method of close attention to processes, by thinking of these processes as symbols themselves, and by framing them against our axes, perhaps we have a clearer picture of the inner state of the patient than without this. As yet, there had been no grossly clinical evidence for psychosis. However, the processes taking place within the Rorschach showed a great vulnerability to psychotic thinking under certain conditions. In such situations, we are justified in referring to Rorschach findings as psychotic, and manifest behavior as not. No one has erred in making a diagnosis. However, when different sources of information are brought together, we should agree that the prognosis for continued surface adaptation is not good, and that the patient is headed for serious trouble. Other than talking about basic symbols (reflecting lack of inner differentiation), we have not gone into the dynamics. We have not ignored "rich dynamic" material, but we have focused on identifying processes that have taken place. In making a thorough Rorschach report on the findings, processes would be connected with all else that was available.

SUMMARY

An attempt has been made to identify and delineate what we have called "process analysis" within the Rorschach sequence. This kind of analysis is a result of asking what process is going on in the patient at a given point. It represents a subtle use of symbol interpretation within the realm of what the patient is doing. It consists of an analysis of the processes which surround the confluence of image formation and conscious reaction to the image. This has been used to clarify some of the reasons why skilled individuals often differ in their evaluations of cases with apparently ambiguous diagnostic qualities. It has been suggested that the nature of a Rorschach examination is rooted in certain qualities about the Rorschach plates that provide the possibility for symbol formation. We have contrasted the difference in the focuses of stimulation between interview and Rorschach techniques. A crucial difference follows from the suggestion that Rorschach allows symbols to emerge. Ambiguity in the structure of the ink blots is only one factor contributing to the emergence of symbols. The blots provide a relatively open response-field. The literature is replete with information about how the different blot determinants (shading, color, space, etc.) influence the appearance of material for interpretation. We have suggested that one of the most crucial aspects of symbol formation in Rorschach may be diminished conscious awareness about the stimulus material. The ink blots provide an opportunity for this to take place, but the processes taking place in the subject make it possible to happen. We may sharpen our awareness about diagnosis and the nature of symbols by investigating the processes that take place at the time of confluence of image and conscious reaction in Rorschach analysis.

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The Levels Hypothesis and the Study of Stimulus Value of Projective Test Items

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Summary: Anagrams and semantic differential (S-D) test responses of *Ss* for whom words were "loaded" on a free association test were compared with those of *Ss* for whom the words were neutral. No differences in rate of word building or mean productivity of the two groups on the anagrams test were found. Mean S-D scale values similarly failed to differentiate between the two groups. However, when numbers of neutral (0) and extreme (+3 and −3) responses were compared, "loaded" *Ss* were found on the whole to rate words more neutrally or more positively. The conclusion was that the stimulus value of the words in the associative condition could not be directly determined from responses in other conditions. The strategy of studying stimulus value of projective test items by using those items as stimuli on tests eliciting different levels of response was, therefore, questioned. Several other related experimental strategies which may mix response levels were also discussed and more appropriate techniques were suggested.

In recent years a number of reports have appeared describing attempts to measure the stimulus value of items on such tests as the Rorschach, the Blacky, and the Bender-Gestalt. The techniques employed in those studies varied. In some, subjects rated the Rorschach blots (Loiselle & Kleinschmidt, 1963; Zax & Loiselle, 1960), the TAT cards (Goldfried & Zax, 1965), the Blacky pictures (Stricker, 1963), or the Bender figures (Goldfried & Ingling, 1964; Guertin & Davis, 1963), on a number of semantic differential (S-D), or S-D-like scales from which profiles, assumed to reflect the stimulus value of the rated items, were constructed. In others, S-D ratings of Rorschach cards and of the concepts "mother" and "father" were compared to determine which card represented "father" (Kamano, 1960), or a male and female doll were matched with Rorschach cards and the degree of association assessed for the same purpose (Mayer & Binz, 1961).

Did these studies in fact determine the stimulus value of the items involved? Although they may have determined the connotative meanings of the items, it is possible that they may not have contributed to an understanding of their stimulus characteristics for standard conditions of administration. To take the case of the Rorschach, for example, one may ask whether the responses elicited by the blots on the S-D are sufficiently comparable to the responses elicited under conditions of free association to allow for such conclusions as that a blot whose S-D profile includes ratings of "large," "heavy" and "potent" is a "masculine" blot under the free association administration. There are two reasons to believe that in fact they are not. One derives from Lindzey's (1959) analysis of the response processes elicited by projective techniques, and the other derives from certain implications of the "levels hypothesis." We shall examine these in order.

According to Lindzey, there are five major types of responses elicited by projective techniques including: 1) Associations; which minimize ideation and emphasize immediacy, e.g. Rorschach responses; 2) Constructions; in which there is creation or construction of a product, most typically an art form such as a story or a picture, e.g. TAT stories. (Unlike associations, constructions are held to require complex cognitive activities). 3) Completions; which are generally less immediate than associations or constructions, and are usually expected to meet such external standards as rationality and comprehensibility, e.g. sentence completion responses; 4) Choices or orderings; in which the major activity is selection rather than either association or construction, e.g. Picture Arrangements; and 5) Expressions; in which there is not only self-revelation but self-expression as well, e.g., finger-painting. Now, as regards the Rorschach, for example, under standard conditions of administration its position in this ordering is quite clear. It is equally clear that the S-D elicits responses of a different type (although it would be difficult to specify precisely where in the ordering it belongs). Therefore, it may be questioned whether the stimulus value of the Rorschach, or of any associative test as determined by the S-D corresponds to its stimulus value under standard conditions of administration.

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[1] The study described in this paper was conducted while the second author was at the University of Rochester.

A similar question is dictated by the "levels hypothesis." According to proponents of this hypothesis, personality may be regarded as encompassing a number of organizational levels, "varying in the degree of accessibility to observation from the outside and to self-observation," (Hanfmann & Getzels, 1953). One important implication of this notion has been stated by Stone & Dellis (1960), viz., that although there may be no detectable correlation between overt behavior and responses to projective techniques, this lack of correspondence need not indicate poor test validity. One may similarly derive several other implications of the "levels hypothesis" which bear more closely upon the present question. One is that the correlation between responses to different assessment techniques will vary as the degree to which the levels or types of the responses elicited by the techniques are different. One would expect less correspondence, for example, between responses to a choice type test and one that is primarily expressive, in Lindzey's terms, than between two associative tests. A second, is that responses elicited by a stimulus under one set of instructions can not necessarily be compared with responses elicited with different instructions when the latter require a different type of response. Thus, responses to an associative condition designed to elicit depth material, e.g., free associations, cannot necessarily be compared directly with one designed to elicit responses which are more consciously mediated, e.g., paired or controlled associates. Were such comparisons possible, the very need for indirect, projective, or "depth" techniques would be obviated.

From a theoretical point of view then, there are reasons to question the advisability of attempting to measure the stimulus value of test items by means of one type of response when these items under standard conditions require a qualitatively different type of response. The purpose of the present study was to put this notion to test by administering verbal stimuli under associative instructions and under two different, viz., anagrams and S-D, conditions. Specifically, we were interested in discovering the pattern of responses given to a word on the anagrams test and on the S-D by *Ss* for whom that word was emotionally "loaded" on the associative test, and by comparing this pattern with that given by *Ss* for whom the word was not "loaded." The prediction was that the response on the anagrams and S-D of "loaded" *Ss* would not be such that "loadedness" could be directly interpreted. The rationale for employing the word association test as the criterion for "loadedness" was because it presumably taps the deepest response level and could, therefore, serve as a useful base against which to compare the responses elicited by the other tests. The anagrams task was employed because it was felt that if the anxiety implied by "loadedness" is present at all response levels, then it should interfere with the complex cognitive functions involved in word building. Finally, the S-D was employed because its prominence in research of this kind, as indicated above, makes an assessment of its usefulness for this purpose quite important.

METHOD

Materials: Fifty common English words (see Table I) were stimuli in the study. On the basis of pilot data, words were selected which would be likely to elicit loaded responses from at least a fair segment of the subject population.

Subjects: Ss were fifty female undergraduate students at the University of Rochester. For reasons of incompleteness, the data of six *Ss* were eliminated from the analysis of the S-D, and the data of four *Ss* were eliminated from the analysis of the anagrams results. Only female *Ss* were employed because previous findings indicated that they tend to express their emotions more readily than do males (Goldfried, 1963; Gurin, Veroff & Feld, 1960; Pine & Holt, 1960).

Procedure: Ss were seen individually for all tests. The word association test was then administered with the following instructions: "I am going to read some words to you. After each word, I'd like you to respond with the very first word that comes to your mind." Following this administration the list was repeated with the instruction: "I am going to read the same words, and I'd like you to respond with the same word you gave the first time." The purpose for using this technique will become clearer below, when the criteria for "loadedness" are presented.

After a rest period the anagrams test was administered with the following written instructions:

> On the top of each of the following pages, you will find a word. Using only the letters of that given word, you are to try to make as many different words as quickly as you can. For example, if the word at the top of the page were PERSON, you might find such words as "son," "pen," "opens," etc. in it. You may use long or short words, but you cannot use a letter more times than it appears in the original word. Proper nouns (names of people, places, etc.), foreign words, or slang words *cannot* be used. Aside from that, you may use any word which might be found in a dictionary.
>
> List as many words as you can think of, one underneath the other. Use only the page on which the word appears. You are to work on only one page at a time; the experimenter will tell you when to stop. You will receive only one sheet at a time. Work as quickly as you can.
>
> Are there any questions?

Since two minutes were allowed for each word, time limits necessitated that only 12 words could be administered. These words were, Difference, Measurement, Table, Command, Dreams, Trouble, Feared, Stupid, Memories, Carpet, Worried and Cheating. With the exception of Difference, Measurement and Table, which were "ice-breakers," the words were selected arbitrarily with an eye toward including those words that were likely to have been responded to as loaded on the word association test by a number of *Ss*. Approximately one week later, 12 scales of the S-D (see Table II) were administered with standard instructions (Osgood, Suci & Tannenbaum, 1957). Once again, time limits necessitated that only 12 of the stimulus words in the total list be used. These were: Family, Cared, Nail, Play, Neat, Love, Milk, Sleep, Command, Feared, Memories, and Worried. As will be seen, 4 words, viz., Command, Feared, Memories and

TABLE I. Words Employed in Word Association, Anagrams and Semantic Differential Conditions.

Free Association		*S-D*	*Anagrams*
Beautiful	Music	Cared	Carpet
Black	Nail	Command	Cheating
Bread	Neat	Family	Command
Brother	Party	Feared	Difference
Butterfly	Pity	Love	Dreams
Cared	Play	Memories	Feared
Carpet	Short	Milk	Measurement
Cheating	Sickness	Nail	Memories
Comfort	Sissy	Neat	Stupid
Command	Sled	Play	Table
Dreams	Sleep	Sleep	Trouble
Drunkard	Slow	Worried	Worried
Eagle	Snake		
Family	Soft		
Father	Soldier		
Feared	Sour		
Filthy	Spider		
Food	Stomach		
Hand	Stupid		
King	Sweet		
Love	Table		
Man	Trouble		
Memories	Trust		
Milk	Ugly		
Mountain	Worried		

Worried, were stimuli on both the anagrams and S-D.

RESULTS

Using responses on the word association test as criteria for "loadedness" of each word, *Ss* were divided into 2 groups, viz., those for whom a word was loaded and those for whom it was neutral. A comparison of the responses of these groups on the anagrams and S-D served the purpose outlined above. Of course, only those words that split the population for an adequate statistical comparison could be included in the analysis.

The criteria for emotional loadedness were based on a method outlined by Levine (1958). The rules for determining "loadedness" were applied to each word in hierarchical order as follows:

1. *Rejection:* The absence of a response to either the original or the repeated presentation of the word.
2. *Change in reproduction word:*
   a. Reaction time (RT) is high (over 2.5 sec.) for both response and reproduction (i.e., response to repeated presentation of word) words.
   b. RT is high (over 2.5 sec.) for response word, but low for reproduction word; the combined RT must be over 5.0 sec.
   c. RT is high (over 2.5 sec.) for reproduction word, but low for response word; the combined RT must be over 5.0 sec.
3. *No change in reproduction word, but high RT:*
   a. RT for response and reproduction words each is over 4.0 sec.

TABLE II. Semantic Differential Scales Employed.

Hard-Soft
Light-Heavy
Slow-Fast
Unpleasant-Pleasant
Weak-Strong
Cruel-Kind
Excitable-Calm
Active-Passive
Emotional-Unemotional
Good-Bad
Wise-Foolish
Severe-Lenient

b. RT for response word is high (over 5.0 sec.), but RT for reproduction word is low (under 4.0 sec.).

Anagrams test results: The mean number of words constructed by *Ss* for whom each word was "loaded" and by *Ss* for whom the word was neutral are reported in Table III. A *t* test of the difference between these means was nonsignificant in all cases. It might be added that a measure of rate of word building had been obtained by having *Ss* indicate the words finished at the end of 30 second intervals during each 2 minute presentation. No differences in rate were noted either.

S-D results: S-D ratings were analysed for differences between mean scale scores for each word, and between proportions of extreme ($+3$, -3) and neutral (0) responses for loaded and unloaded *Ss*, (see Table IV). No differences between any of the means were noted. Thus, the connotative meanings of the words for the "loaded" group as a whole would not have indicated that the words were "loaded" for them. However, some differences did emerge when percentage of extreme and neutral responses were compared by means of a test for differences between uncorrelated proportions. It should be noted that, because of the relatively small number of responses compared, and because of the desirability of allowing any potentially significant differences emerge, significance levels beyond the .10 are reported.

As can be seen in Table IV, for "Feared" a note-worthy difference was on the *severe-lenient* scale, with loaded *Ss* giving the word a greater number of extreme *lenient* rating ($p < .10$). "Memories" elicited fewer extreme ratings from "loaded" *Ss* on *active* ($p < .10$) and significantly more neutral ratings on the *severe-lenient* scale ($p < .10$). "Love" elicited fewer extreme scores on *emotional* ($p < .01$) and more extreme ratings on *pleasant* ($p < .10$) from neutral *Ss*. "Worried" received fewer extreme *bad* ratings ($p < .10$) and fewer extreme *unpleasant* ratings ($p < .05$) from "loaded" *Ss*, but more neutral ratings (from those *Ss*) on *wise-foolish* ($p < .0001$), *severe-lenient* ($p < .01$) *hard-soft* ($p < .02$), and *slow-fast* ($p < .10$). Finally, "Cared" elicited fewer extreme ratings on *emotional* ($p < .10$) from loaded *Ss*. In summary, then, "loaded" *Ss* seem to have been avoiding "negative" responses on the S-D, and moving in the direction of checking more neutral responses. The hypothesis that no responses directly interpretable as indicating "loadedness" would emerge appears again to have been borne out.

DISCUSSION

We have found that there are some important differences and similarities between responses to the same verbal stimuli elicited by three assessment techniques. Thus, an anagrams test

TABLE III. Comparison of Mean Number of Words Constructed by "Loaded" (L) and "Unloaded" (U) *Ss* on Anagrams Task.

Word		*Mean*	*S.D.*	*Result of statistical analysis*
Fear	L. (N = 22)	10.7	1.9	N.S.
	U. (N — 24)	11.7	1.8	
Worried	L. (N = 11)	10.9	2.8	N.S.
	U. (N = 35)	9.7	3.0	
Dreams	L. (N = 7)	10.9	2.3	N.S.
	U. (N = 39)	12.7	3.7	
Trouble	L. (N = 12)	9.6	3.5	N.S.
	U. (N = 34)	9.7	2.9	

did not discriminate between one sub-group which had given disturbed associations to a word and another whose responses had shown no signs of disturbance. Similarly, although the S-D did show differences in the connotative meanings attributed to the words by these sub-groups, *Ss* whose responses were "loaded" on the word association test tended to attribute either more positive meanings or more neutral meanings to their loaded words than did *Ss* whose word association responses showed no disturbances. It might be noted that this finding is in accord with those of Osgood, *et al.*, (1957) and Zax, Cowen, & Mary Peter (1963), that schizophrenics, for whom many stimuli are presumably "loaded," check neutral significantly more often than do normals. Therefore, it appears that while certain response characteristics on the word association test are associated with certain S-D response patterns, the relationship is not a direct one. That is, although "loaded" words ought presumably to have more negative meanings, or at least more extreme meanings than "unloaded" words, these can apparently be obscured by a defensive flight into neutrality on the S-D. To construct S-D profiles for such words, then, may lead to serious misjudgment of the underlying meanings that these words have for certain *Ss*. For example, a rating of neutral on a number of S-D scales for the word "worried" may accurately reflect the connotative meaning of that word for a *S*, on the other hand it may be a defensive rating. To discriminate between these alterna-

TABLE IV. Summary of Significant Differences Between "Loaded" (L) *Ss* and "Unloaded" (U) *Ss* on S-D Measures.

Scales	Feared L (N = 21) U (N=21)	Memories L (N = 8) U (N = 36)	Love L (N = 7) U (N = 37)	Worried L (N = 11) U (N = 33)	Cared L (N = 20) U (N = 24)
Excitable-Calm					
Active-Passive					
Emotional-Unemotional		U>L.—3's[a] p<.10			
Good-Bad			U>L.—3's p<.01		L>U.—3's p<.10
Wise-Foolish				U>L.+3's p<.10	
Severe-Lenient				L>U. 0's p<.001	
Hard-Soft	L>U.+3's[b] p<.10	L>U. 0's[c] p<.10		L>U. 0's p<.01	
Light-Heavy				L>U. 0's p<.02	
Slow-Fast					
Unpleasant-Pleasant				L>U. 0's p<.10	
Weak-Strong			L>U.+3's p<.10	U>L.—3's p<.05	
Cruel-Kind					
Total (across scales)	L>U.—3's p<.05 L>U. 0's p<.10			U>L.—3's p<.10 L>U. 0's p<.00001	L>U.—3's p<.10 L>U. 0's p<.10

[a] — 3 = adjective to the left
[b] + 3 = adjective to the right
[c] 0 = neutral ratings

tives, one would have to make use of a test which would bypass or prevent such defensive maneuvers.

The conclusion seems warranted that inferences about the stimulus value of a test item presented under one set of conditions cannot be made from responses to that item administered under conditions requiring a qualitatively different type of response, since, in fact, stimulus value is the property of the total stimulus environment, i.e., test items, plus instructions, plus situational variables (cf. Zax, Stricker & Weiss, 1960). Thus, the use of the S-D to determine the properties of the Rorschach blots which are ordinarily administered under associative conditions, could be justified only if it were assumed that the types of responses elicited by the two conditions were directly comparable. Certainly our results would cast doubt upon such an assumption.

A more acceptable technique of studying stimulus value of test items *per se* would compare responses elicited under conditions in which the stimulus properties of the items would be varied while the administration, i.e., the remainder of the stimulus environment not of immediate interest, was kept constant. Several studies employing this technique may be cited illustratively. Korner, Allison & Zwanzinger (1962) compared the responses of groups of *Ss* to two different sizes of Rorschach blots, both administered under standard conditions. Similarly, Marks (1961) experimentally manipulated texture and form elements of Card VI of the Rorschach and administered them under standard conditions to determine the effects of the manipulation on popular responses. Finally, Exner (1961) compared the responses elicited by the usual achromatic Rorschach cards IV and VI with the responses elicited by blue colored versions of those cards with administration held constant. The advantage of this approach seems clear, especially as it makes unnecessary the questionable assumption of comparable responses elicited under different conditions of administration.

The present results bear most directly upon the problem of making inferences to other conditions from responses elicited under associative instructions for purposes of measuring stimulus value. However, they may also bear upon the comparison of sets of different test responses for other purposes. It may be useful to review these briefly. First, studies designed to validate one test by means of comparison with another test. This procedure is commonly used where the criterion is a test score, not a directly observable behavior (American Psychological Association, 1954). In this instance serious errors of estimating the validity of the test may result if the criterion test elicits a different, non-comparable type of response. For example, validating an associative measure of primary process, by correlating derived scores with Sentence Completion Test scores, may be an error since the appearance of primary process material may vary significantly, and to an unknown degree depending upon the type of response required. In this example, one associative measure of primary process would be most appropriately validated against another associative measure. Second, the validation of tests by prediction of observable behaviors (American Psychological Association, 1954). As Stone & Dellis (1960) pointed out, this procedure may be fallacious where the observed behavior relates to a different level of personality organization and observation than does the type of response elicited by the test. Third, the validation of clinical interpretations of test responses by comparing the interpretations with profiles elicited by the responses used as items on another test. For example, Goldfried (1963) compared the connotative meanings of Rorschach percepts as determined by the S-D, with the Phillips & Smith (1953) content analytic interpretations of those percepts, and found that although there was some agreement, there was also notable disagreement. In this case it was the level of the clinician's response and those of naive *Ss* using the S-D that were assumed to be sufficiently similar to justify the comparison. The degree to which this assumption is true, however, remains to be determined. Finally, the concerns outlined above apply to hypothesis testing in general. For example, Margolis (1961) has suggested that psychoanalytic hypotheses about unconscious conflicts are probably not most adequately tested with pencil and paper inventories. Freeman, Feingold, Schlesinger & Gorman (1964) have summed up this position quite well as follows: "A good deal of care in design is needed to make the levels of behavior tapped in an experiment congruent with, or logically derived from, the behavioral level described in the hypothesis" (p. 555).

In closing, it should be noted that the position of the present authors is *not* that there are no aspects of responses at one level which can be related to aspects of responses at other levels. Obviously, in our data, neutral S-D responses were related to word "loadedness." There are parallels, then, in the two responses that could be meaningfully studied. The point, rather, is that the manner in which the S-D, for example, and its responses have been employed, indicate that attention has been paid to a) only a limited aspect of the stimulus environments, and b) only limited, and in some instances inappropriate, aspects of the responses such that misinterpretations could potentially result.

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A Brief Note on the Relationship Between Rorschach Developmental Level and Intelligence[1]

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Summary: Rorschach Developmental level and intelligence were compared, using both an overall DL score and a ratio DL score. Overall DL correlated significantly with IQ, whereas no significant relationship was found between IQ and a number of different ratio DL scores. The findings were interpreted as indicating that the lack of relationship between DL and IQ previously reported in the literature stemmed from methodological considerations rather than from any inherent lack of relationship between the two variables.

On the basis of developmental theory formulated by Werner (1948) and Rorschach findings described by Ainsworth and Klopfer (1954), Goldfried (1962) hypothesized a relationship between Rorschach Developmental Level and Intelligence. He found them to be significantly related ($r = .44, p < .001$).

Friedman and Orgel (1964) have taken issue with Goldfried, contending that " . . . from the standpoint of the rationale which led to the development of the original genetic (or developmental) scores, no such relationship with intelligence level is necessarily inferred" (p. 425). To substantiate their viewpoint, Friedman and Orgel investigated the relationship between Developmental level (DL) and intelligence (IQ) in many divergent subject populations — i.e. clinically normal, psychoneurotic, schizophrenic, cerebrally damaged. They concluded, "In general the findings point to an absence of relationship between *unaltered*[2] genetic scores and intelligence level . . . " (1964, p. 426).

A comparison of the two studies reveals a *major* procedural difference. Goldfried (1962) used an overall DL score to correlate with IQ, whereas Friedman and Orgel (1964) used a ratio DL score. Overall DL makes use of the entire protocol. takes into consideration genetically high responses (i.e. W++, W+, W_m)[3] as well as genetically low scores (i.e. W_v, W−, W_a, DW), and yields one composite score. The ratio DL score makes use of only a portion of the data (i.e. genetically whole responses, = (W++) & (W+) & (W_m) total W), and thus yields a number of different ratios. This consideration led to the current study which compared the relationship between Rorschach DL and IQ, using both overall DL and ratio DL scores.

METHOD

From the records of a child guidance clinic a sample was drawn of individuals who had been referred for diagnostic evaluation, administered the Rorschach and were found to have an IQ of 80 or higher on an individually administered intelligence test. The final sample consisted of 40 protocols. The mean age was 14.1 with a range of 11-16; the mean IQ was 98 with a range of 80 - 124.

The 40 Rorschach protocols were all rescored according to the procedure suggested by Friedman (1953). An overall DL score was then obtained for each subject following the method of assigning a numerical value, 1-6 to each scoring (in the direction of higher developmental functioning), totaling the score for

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[1] I would like to express my appreciation to John M. Reisman who served as one of the scorers.

[2] Italics are the authors.

[3] Usual [D] and Unusual [Dd] detail scores are also included in the overall DL score.

Table I — Correlation Coefficient Between IQ and Developmental Scores

Overall DL	+.42**
$\frac{[W++] \,\&\, [W+] \,\&\, [W_m]}{W}$	+.15
$\frac{[D++] \,\&\, [D+] \,\&\, [D_m]}{D}$	—.14
$\frac{[W++] \,\&\, [W+] \,\&\, [W_m] \,\&\, [D++] \,\&\, [D+] \,\&\, [D_m]}{\text{total D \& W}}$	—.06
$\frac{[W++] \,\&\, [W+]}{\text{total W}}$	+.17
$\frac{[D++] \,\&\, [D+]}{\text{total D}}$	—.03
$\frac{[W++] \,\&\, [W+] \,\&\, [D++] \,\&\, [D+]}{\text{total W \& D}}$	+.28

**$p < .01$

each card, dividing by the number of responses for the card and then averaging the 10 DL scores (Wilensky, 1959). Twenty of the Rorschach protocols were independently rescored by a second scorer, resulting in an inter-scorer reliability of .95 (Pearson).

Results

The coefficients of correlation between Rorschach DL and IQ scores are presented in Table I.

When the ratio DL's were used as a basis for comparison, no statistically significant relationship between IQ and DL was obtained. However, using the overall DL score, the obtained correlation was significant ($r = +.42$, $p < .01$). Friedman and Orgel's (1964) conclusion regarding the lack of relationship between Rorschach Developmental Level and intelligence may therefore be challenged. Their failure to find a relationship between the two variables appears to have resulted from their approach rather than from any inherent lack of relationship between Developmental Level and intelligence.

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tion" as well as for each of the above ten dimensions separately. For checking the reliability of ratings, five judges were asked to rate two Ss from the interview material. Eighty per cent perfect agreement and 20 per cent partial agreement (deviating not more than one step on the four-point scale) were obtained.

Inasmuch as very few Ss were placed by the interviewers in either of the categories 1 and 2 (the low-maturity pole), these two were collapsed into one for the purpose of analyzing the data. The measure was therefore reduced from a 4-point to a 3-point scale.

(b) The scale of mental health was developed by Dymond (1954) for assessing the individual's adjustment from his TAT production. On the basis of the literature, and on what seems to be a Sullivanian framework, Dymond extracted a number of dimensions thought to be intimately related to mental health. These include the ability of the hero to solve his own problems *vs.* dependence on others or magical forces, the kinds of interpersonal relations the subject depicts in his stories, e.g., constructive *vs.* destructive interaction, etc. Each TAT protocol was given a single composite rating on a seven-point scale ranging from "Severe disturbance bordering on psychotic to psychotic" earning a score of 1 to "Well-integrated, happy person" with a score of 7. This method differentiated significantly between the protocols of pre- and post-therapy clients, and was significantly related to measures by the Q-sort technique and to counselors' ratings of therapeutic success. The intra-judge reliability reported by Dymond was .94.

The TAT protocols of 30 randomly selected Ss of this study were scored by this investigator according to Dymond's method. Each protocol consisted of at least eight TAT cards. Ten protocols were pulled out at random and re-scored three months after the initial scoring; the intra-judge reliability was .84.

(c) The Complexity Scale was fashioned by the author (1961) after G. Kelly's Repertory Role Construct Test within the framework of role construct theory (Kelly, 1955). Out of 30 constructs commonly used in TAT terminology, 17 were found to occur in at least 8% of the protocols of the Ss. Examples of these are achievement - recognition, affiliation-nurturance, and anxiety. The 17 constructs were selected as a baseline for evaluating the relative complexity of the subjects' interpersonal perception, the rationale being that complexity is a significant dimension of healthy adjustment (Henry & Neugarten, 1956).

For this aspect of the study 30 protocols, excluding those used in (b) above, were pulled out at random and scored for complexity. Eight TAT cards were used. Each protocol was assigned a score, ranging from 0 to 17, equaling the number of constructs used in describing any of the TAT characters in the card. The reliability of this scale, expressed in percentage of agreement between two judges, was 93 (N = 10).

RESULTS AND DISCUSSION

Following Dana's statistical method of analysis the ESS scores were dichotomized into "below" and "above" the median. The frequencies thus obtained and the distributions of overall ratings by interviewers on the level of maturity of Ss and their success in having made the transition to adulthood were cast in 2 x 3 tables. The X^2 value for the relationship between ratings and ESS was 11.8, $P < .01$, (df = 2).

The distributions on each of the 10 dimensions were similarly treated. Dimensions 1, 8, 9 and 10 were found to be significantly related to ESS at the .01, .02, .05, and .02 levels respectively. The other six dimensions were all in the expected direction.

The scores on Dymond's Scale and

the ESS scores were correlated, yielding an r of .72 which is significant at beyond the .001 level (df = 28). A product-moment correlation of .52 between the ESS and scores on the Complexity Scale was obtained. For df = 28, this r is significant at beyond the .01 level.

Before drawing any conclusions it is essential to point out a major limitation of this study. Since the five TAT cards used for scoring ESS were utilized in deriving the scores on two of the validation measures — the Dymond Scale and the Complexity Scale — the contamination is obvious. The correlations reported cannot therefore be accepted without reservations. As an apologia, no more than eight TAT cards were administered to each subject. And since neither of the two validation scales could meaningfully be employed without a relatively wide sampling of production, Hobson's choice was the only alternative.

However, in view of the fact that the ESS is significantly related to the ratings by interviewers — a criterion more stringent than either of the two other validation measures — the correlations between ESS and each of complexity and mental health scales may not be altogether spurious. Certainly, they are suggestive and perhaps strongly so.

The ESS is, of course, inferential and so is the interviewer's rating. They do, however, differ in that they tap different levels of functioning, the interviewer's rating falling closer to overt behavior. Aside from lending further confidence in Dana's scale, the significant relationship between the ratings and the ESS sheds some light on the question of the relation between overt behavior and projective material. This issue is of considerable theoretical and practical significance and is still very much alive (and muddled), as the deliberations of a relatively recent symposium on the subject have clearly shown (Carr, 1960).

Dana's analytic schema seems to focus more on the form than on the content of the TAT. This is particularly evident in the case of PO. Having been instructed to attune themselves to observing the behavior of the subject and the nature of his or her interaction with the interviewer and other family members present during the interview, the rating by the interviewer, after spending 3-4 hours with each subject, is undoubtedly heavily influenced by direct observation of overt behavior. To a great extent, overt behavior, or at least that part of it which the interviewer can capture and have confidence in noting, is expressive and stylistic; and so is the form aspect of the TAT. Viewed in this light, the relationship between the ratings and the ESS seems quite plausible and theoretically meaningful. It is possible that, to the degree that it can be made, an explicit distinction between form and content in future research on the relations between projective material and overt behavior, might prove quite rewarding.

As to the ESS itself, it may be concluded that because of its parsimony, replicability, reliability, quantifiability and validity, the instrument recommends itself well as a useful research tool. Its validity is all the more telling because the BM rather than the GF cards were used in deriving the scores for the female Ss.

Since Dana has provided PR criteria for only five cards, thus limiting the instrument's range of convenience, further efforts for deriving PR normative material for other cards are warranted.

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Similarities of Defense Preferences Within Families and Within Sex Groups

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Summary: 50 males, 17 and 18 years of age, and their natural parents were given the Blacky Defense Preference Inventory to determine if there are commonalities of defense preferences within families and within sex groups.

The results tended to support the hypothesis that male adolescents manifest defense preferences more similar to those of their father than to nonrelated adult males but failed to support a comparable hypothesis concerning the adolescent's similarity of defense preferences to his mother versus nonrelated adult females. The adolescent males did not reveal defense preferences more similar to those of their father than of their mother nor were sex differences in defense preferences observed. An additional finding suggested that the adult males are more heterogeneous in their defense preferences than are adult females.

In recent years, investigators have attempted to identify some of the basic variables which might be related to defense preferences. Social class and sex differences in defense preferences were among the variables studied.

Miller and Swanson (1960) found no class differences with regard to denial, but did find that middle class boys were more inclined to repress their failures than were lower class boys. With regard to aggression the middle class boys employed "self-modifying" defenses more often than the lower class boys. Their study further revealed that their subjects behaved as their parents behaved and not necessarily in accordance with parental requests. This was reflected in their finding that the expression of aggression in story endings was predominantly indirect for those children whose parents favored psychological techniques of discipline and primarily direct for those whose parents corporally punished them. Weiss (1957) and Selzer (1957) found that "intellectualizers" tended to come from a higher socioeconomic class, whereas "repressors" tended to be of a lower socioeconomic class. The above studies appear to be contradictory concerning the relationship between social class and the preference for repression. The contradictory findings may be a result of the different instruments employed in dissimilar testing situations. In Miller and Swanson's study the defense preference was precipitated by a fear of failure whereas Weiss and Selzer utilized the Rorschach.

Miller and Swanson (1960) have found that those men who manifested a feminine identity, conscious or unconscious, utilized denial and withdrawal more than other subjects. If sex identity is related to defense preferences, one might also expect sex differences in defense preferences. Using the Blacky Defense Preference Inventory (DPI) as a measure of defense preferences, Peak, Muney, and Clay (1960) found that females preferred reaction formation more often than the males, who preferred projection more often than did females. This analysis was performed only on those cartoons which Blum identified as hostility cartoons (i.e., II, III, IV, VII, and VIII). With a psychiatric population Weiss (1957) and Selzer (1957) found few female "projectors" and few male "deniers."

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[1] This study was a portion of the author's doctoral dissertation completed at Michigan State University. The guidance and encouragement of Albert I. Rabin, chairman of the dissertation committee, is gratefully acknowledged. The author is now at the University of Missouri.

The findings of social class differences in defense preferences raise the question of how such differences in defense preferences are established and maintained. As an explanation Miller and Swanson (1960) have suggested that children acquire defense preferences from their parents. Thus, one might expect similarities of defense preferences within families. On the basis of previous research revealing differences in defense preferences as a function of sex identity and sex, one might predict similarities of defense preferences within sex groups, both within families and across families. In order to explore these ideas, the following hypotheses were formulated:

1. Male adolescent subjects manifest defense preferences which are more similar to those shown by their father than to nonrelated adult males.
2. Male adolescent subjects employ defense preferences which are more similar to those manifested by their mother than to nonrelated adult females.
3. The male adolescent subjects exhibit defense preferences more similar to those of their father than those of their mother.
4. The adult male subjects reflect defense preferences which differ from those employed by adult female subjects.

METHOD

Subjects and Procedure

The DPI was administered individually to 50 males, 17 or 18 years of age, and their natural parents. The adolescents were students in two coeducational high schools, one of which is a Catholic high school and the other a public high school, containing primarily Catholic students. All of the adolescents were living with their natural parents at the time of the study. The general occupational level of the adult males may be described as follows: 10 as managerial or professional, 22 as skilled or white-collar, and 18 as unskilled. Seventy-two per cent of the families contacted agreed to take the test. The instructions and procedures for administering the DPI followed those established by Blum (1956).

Analysis of the Data

The data consists of the rankings of five statements, each of which reflects a given defense category, by the subjects, to each of the 11 cartoons. Two subjects may be compared by determining the differences in ranks to each cartoon and summing these differences over all 11 cartoons. These difference scores were squared to accentuate the dissimilarity of two ranks to a given statement.

The data were analyzed similarly for the first and second hypotheses. Regarding the former the dissimilarity score of defense preferences between son and father was determined. The same son was then compared with all other fathers and the mean dissimilarity score of all these comparisons was determined. The difference between these two scores, when determined for each son, resulted in data appropriate for the Wilcoxon Test. Substituting the mother for the father, the data for the second hypothesis were analyzed in exactly the same manner.

In order to test the third hypothesis, the dissimilarity of defense preferences of each son with his father and with his mother was determined. The difference between these two scores for each son was ranked, making the data suitable for the Wilcoxon Test.

To test the fourth hypothesis, each adult male was compared on the DPI with all other adult males and a mean dissimilarity score was determined. Likewise, each adult male was compared with all the adult female subjects and a mean dissimilarity score was established. It was expected that the difference between these two mean dissimilarity scores, for each adult male, would provide the data to test the fourth hypothesis with the Wilcoxon Test. However, because of an unexpected distribution of scores of the two sex groups, mean rank scores were obtained for each defense category and *t* tests were applied to the data. The unexpected distribution of scores led to an interesting additional finding which is presented along with the other results.

RESULTS

The statistics relevant to the first three hypotheses, and an additional finding, may be found in Table I. The first hypothesis compares each son with his father versus all nonrelated adult males. Employing the Wilcoxson Test, a *z* score of 1.27 was obtained which is not statistically significant. An examination of the data revealed that a small number of families made a large contribution which was contrary to the prediction. In order to minimize the influence of the magnitude of the difference scores, the Sign Test was applied to the same data. Table I shows that with this statistic, a *z* score of 1.84, which is significant at the .03 level, was obtained. This provides some confirmation for the first hypothesis.

TABLE I—Statistics Pertinent to Hypotheses 1-3 and an Additional Finding (A)

Hypothesis	z	p
1	1.27	NS
1 (Sign Test)	1.84	.03
2	.98	NS
3	—.19	NS
A (Mann-Whitney U Test)	3.79	.001[a]

[a] Two tailed test

The second hypothesis failed to be supported by the data as Table I reveals a *z* score of .98 which can be accounted for on the basis of chance. Therefore, it cannot be concluded that the sons are more similar in defense preferences to their mother than to nonrelated adult females.

The third hypothesis was clearly unsupported by the data as Table I reflects a *z* score of —.19. Consequently, this study failed to support the hypothesis that adolescent males have defense preferences more similar to their father than to their mother.

The fourth hypothesis was concerned with the question of sex differences among the adult subjects. The *t* tests revealed that the mean rank of the adult males, for each defense category, was not significantly different from the mean rank of the adult females.

The additional finding concerns the question of a difference between the adult males and the adult females in the heterogeneity of their defense preferences. In order to determine if there was a difference in this regard, the mean dissimilarity score of each adult male with all other adult males was determined. Likewise, the mean dissimilarity score of each adult female with all other adult females was determined. Applying the Mann-Whitney *U* Test to these data resulted in a *z* score of 3.79 which is significant beyond the .001 level of confidence (see Table I). Further, the direction of the *z* score indicates that it is the adult males who are relatively more heterogeneous in their defense preferences and the adult females who in turn are more homogeneous in their defense preferences.

DISCUSSION

In the research reviewed in the first section, social class and techniques of discipline were observed as variables related to defense preferences. To explain these findings, Miller and Swanson (1960) have proposed that children acquire certain defense preferences from their parents. If this is in fact the case, one would expect children to have defense preferences more similar to their father than to nonrelated adult males, and more more similar to their mother than to nonrelated adult females. The former of these was supported by this study and the latter was not supported. Perhaps the latter was not supported because of the relatively homogeneous defense preferences of the adult females. Such a situation might make it very difficult for the adolescents to be significantly more similar to their mother than to nonrelated adult females. In any case, no clear refutation or confirmation is offered by this study for Miller and Swanson's notion that children acquire defense preferences from their parents.

The lack of support for the hypothesis that the adolescent males employ defense preferences more similar to their father than their mother, along with the finding of greater similarity of the sons to their father versus nonrelated adult males, raises an interesting possibility. Perhaps the acquisition of defense preferences, while to some extent transmitted in the family situation, does not follow sex lines. This proposition is consistent with the failure of this study to disclose sex differences in defense preferences among the adult subjects. The pertinent data do not support the findings of Peak *et al.* (1960), Weiss (1957), and Selzer (1957) concerning sex differences in defense preferences. Perhaps differences in the respective populations would account for the inconsistent findings.

One of the more intriguing findings of this study was that males, as a group, vary more in their defense preferences than females. A possible explanation is that men have more freedom, more alternatives for behavior, than do women. This would be particularly true with regard to sexual and hostility conflicts which often provide the impetus for defensive behavior. A consequence of the constraints of society on women is that they tend to respond in a similar fashion to a stressful situation. Only further research will offer objective clarity to these speculative remarks.

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Developmental Study of Ambiguity Level in Picture-Story Stimuli[1]

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Summary: Previous research has shown that moderate ambiguity of meaning in pictures composing a TAT-type series results in maximum productivity with adults. Ss, 5 and 12 years old, and of average and above-average intelligence, were used to study the relevance of ambiguity of picture design with children. Highly structured, high emotion pictures evoked greater response productivity from the older sample. By contrast, the younger children responded more productively to the ambiguous series of pictures. A structured positive affect picture elicited the least productive stories in both age groups when compared with negative affect and ambiguous stimuli.

Murray (1943) originally formulated the principle that high ambiguity of meaning in a picture would elicit a maximum of fantasy verbalization. Pictures that too clearly portrayed the feelings of the figures or the meaning of the pictured situations were believed to elicit stereotyped stories. Murstein (1961, 1963) reviewed the literature on ambiguity and concluded that rather than there being a monotonic relationship between stimulus ambiguity and fantasy material elicited, a curvilinear relationship existed. Picture-stimuli with moderate ambiguity values yielded stories with more fantasy material than did either the high or low ambiguous stimuli (Bijou & Kenny, 1951; Kenny, 1954; Kenny & Bijou, 1953; Murstein, 1958; Ullman, 1957). Investigations to date have not explored the dimension of ambiguity with children.

The young child responds quite differently to impinging stimuli than the adult. He does not differentiate easily between his inner needs and outer reality and is not able to impose a lengthy period of delay between perceiving and responding. He responds most easily to things perceived which either explicitly or implicitly appear to move within his visual field. Similarly, he responds more readily to objects which are experienced with intensely felt emotions. The young child tends to rely more heavily in his perception on his own motor-affective attitude than the adult, who will tend to take more account of causal factors and other reality considerations not yet available to the child. The characteristics of the young child's perceptual response indicate a greater reliance by the child on the environment. In light of these differences in functioning, design characteristics of pictures for children may differ from those for adults.

Budoff (1963) has shown that the manner in which picture-story materials are designed affects their "pull-power" as pictures. Pictures which depicted a figure in isolation or with no definite action portrayed elicited less rich stories than pictures in which the figures were portrayed around some definite focus or activity which was clearly implied by the picture. Kagan (1956) predicted aggressive behavior most accurately in a sample of delinquent boys using pictures which portrayed aggressive content clearly.

It would seem that children, and the young child especially, may respond maximally when there is a discernably heightened visual-tension level in the picture such that scenes appear to have dynamic attributes to the viewers. Arnheim (1954) states that the visual-tension level of a picture may be heightened by the implication of motion in a statically portrayed situation, or by intensifying the emotional expressions of the characters portrayed. The latter approach was employed in this study. Pictures were selected in which three strong emotions, fear, anger, and sadness, were portrayed and these were paired with pictures in which no discernable emotions were depicted. As Werner (1948) suggests, it was expected that children, especially young children, would give more productive responses to the structured high-emotion pictures because the tension level of the picture had been increased by heightening the emotional expression of the figures portrayed. The sample of older children, by contrast, might be expected to give more impoverished and stereotyped responses to the structured pictures and respond more productively to the ambiguous stimuli as the data derived from the college students suggests.

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METHOD

Sample

The sample was composed of two groups of 20 *Ss*, each group containing an equal number of boys and girls. The younger group had a mean chronological age of 5 yrs., 6 mos. (S.D., 1.96 mos.) and the older group, a mean age of 11 yrs., 10 mos. (S.D., 3.6 mos.). Two levels of intelligence were included within each age group, an average and a high average to superior level. In the older group, *Ss* were selected for the two intelligence levels (I.Q. - 98 to 110 and 111 to 128, respectively) on the basis of their scores on the Iowa Mental Maturity Test (Form FM) which had been administered two weeks prior to the data collection as part of the school's regular pupil evaluation program. Since the kindergarten children were not included in the school's testing program, the Kuhlman-Anderson Test (Form K) was administered, and *Ss* were selected who fell within the same I.Q. ranges.

All the *Ss* were obtained from a suburban school which enrolls children from a small development in which the homes are similarly priced. The socio-economic level was approximately middle income, the fathers' occupations being mainly small business proprietors, teachers, and white collar workers. None of the *Ss* chosen was considered a problem child by the school staff.

Stimuli

The picture-stimuli employed in the present study consisted of especially designed pictures, each one containing a figure of a boy.[3] Three cards contain a boy displaying a clearly illustrated negative emotional expression and constitute the series of structured high emotion stimuli. Card L1 depicts a boy with an expression of extreme anger walking with his fists closed; card L2 shows a boy at a window with an expression of extreme fear; and card L3 shows a boy sitting at the base of a wall crying. Three cards compose the ambiguous series of stimuli in that the figure of the young boy lacks emotional expression. In card H1 a boy is shown leaning against a lamppost; card H2 shows the side view of a boy sitting on a dock facing the water; and card H3 shows a rear view of a boy walking into a lighted room. Prior to the experimental series, all *Ss* were presented an additional picture of a boy happily running down a street waving something like a letter. Two additional cards, which were irrelevant to the study, were used as a warm-up for the task. The pairs of experimental pictures were ordered randomly. Half the *Ss* were presented the high ambiguous picture (H1) first, followed by alternating pictures from each series, a low ambiguous picture

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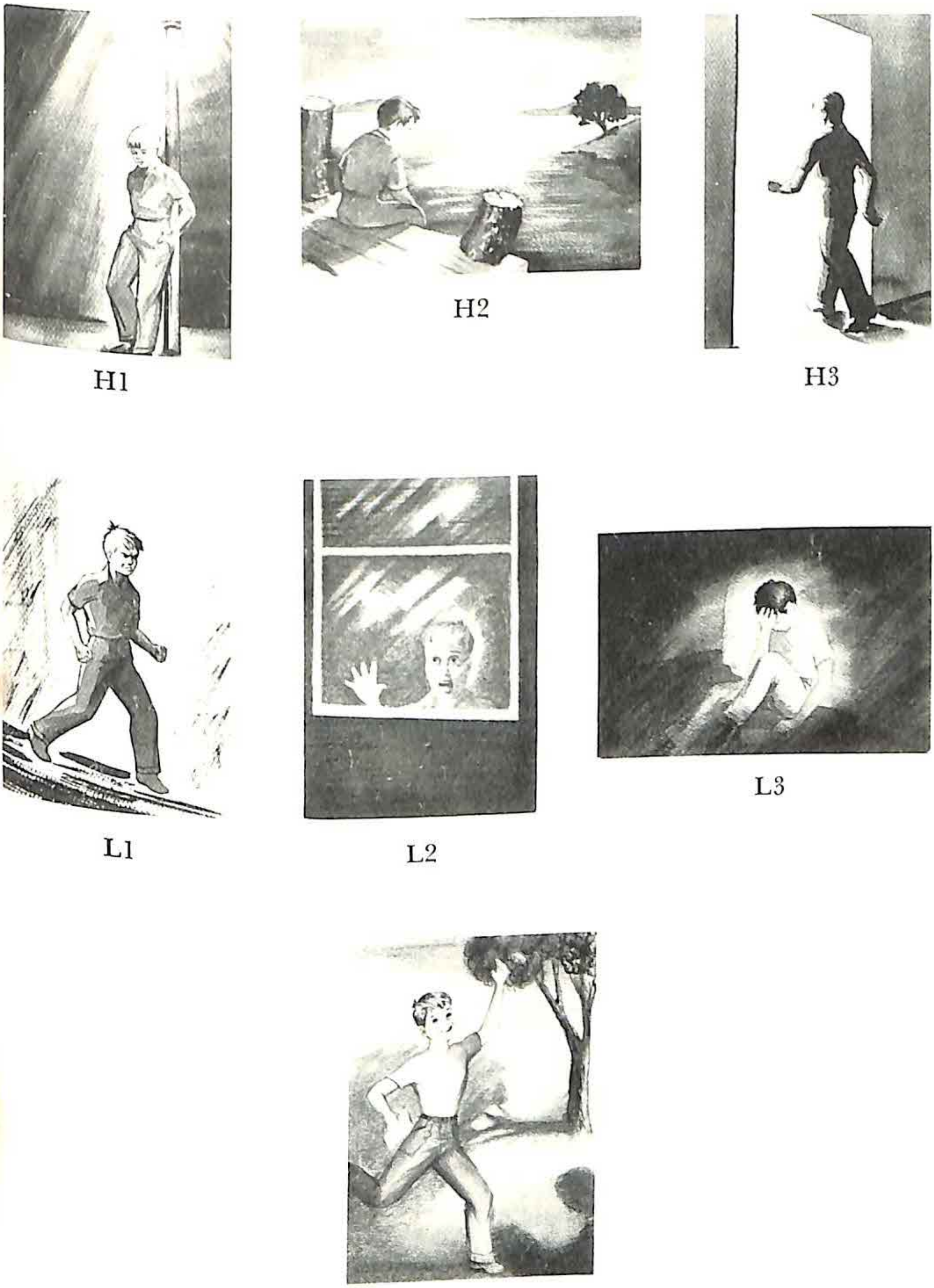
[3] The authors express their appreciation to Dr. Seymour Epstein who kindly allowed them to use stimuli which he designed. The pictures were all drawn by the same artist.



H1 H2 H3

L1 L2 L3

L4

FIGURE 1—Picture Stimuli Employed in the Study

on the structured cards or received equal ratings for both series of pictures was tabulated. The frequencies obtained for goodness of response indicated that the 5-year-olds told better stories to the ambiguous series whereas the 12-year-olds told better stories to the structured stimuli ($X^2 = 8.284$; $p < .01$), supporting the direction of results obtained with the quantitative measures. The obtained frequencies for the personality revealingness measure indicated no trends.

As would be expected, the older children were more productive on all the formal verbal measures. Mean scores on the quantitative measures did not vary as a function of I.Q. level within each age group with the exception of the intraception measure. The high I.Q. *Ss* responded with a greater number of intraceptive statements than the low I.Q. *Ss* with means of 23.1 and 15.5 statements, respectively. The significant CA x I.Q. interaction ($F = 9.56$; $p < .01$) for intraceptive statements indicated that although the high and low I.Q. *Ss* in the 5-year-old group differed little in the mean number of intraceptive statements given, the 12-year-old high I.Q. *Ss* gave a greater number of such statements than did the low I.Q. *Ss* of the same age.

Variation in the measures due to the effects of the picture stimuli presented was limited to emotional words. As the structured emotional stimuli portrayed strong negative emotions, these stimuli were expected to elicit more emotional words. Contrary to this expectation, the ambiguous (low-emotion) stimuli tended to elicit a greater mean number of total emotional words (103.7 and 87.0 for ambiguous and structured stimuli, respectively) and more negative emotional words (72.6 and 52.6 structured and ambiguous stimuli, respectively). Also, the structured high emotion pictures elicited more positive emotional words than the ambiguous pictures (33.1 and 21.7 words, respectively).

A check was made of the nature of the response to each series of pictures, i.e., did the structured series elicit negatively toned stories as would be expected from the manifest content? The stories were coded as being positively or negatively toned, having no emotion or starting on a negative note but ending with either positive affect or no emotion expressed. The response to each story was coded separately. The sample was dichotomized by comparing *Ss* whose stories contained either no emotion or positive feelings with those whose stories were predominantly negatively toned or began by expressing negative feelings but finished on a positive note or with no emotion expressed.

A chi-square analysis of the response to the emotional pictures indicated that very few boys, at both age levels, responded to the manifest content of these negatively toned pictures as compared with the girls, ($X^2 = 8.44$; $p < .01$). This was most pronounced among the younger children, (Fisher exact probability test, $p < .025$). By contrast, girls and boys alike responded with negatively toned stories to the ambiguous pictures, ($X^2 < 1$), suggesting the possibility of a "spill-over" effect from the negative to the ambiguous pictures.

Only three children (all younger) ended their stories on a negative note to the structured pictures suggesting that normal children who responded appropriately to the content of this series were able to cope successfully with the very negative moods depicted. While the older children were able to cope with the negative emotions generated by the ambiguous series, the younger children had more difficulty, a greater proportion ending their stories on a negative note, ($X^2 = 3.9$; $p < .05$).

The productivity measures to the structured pictures may have been inflated, especially among the older children, by the *Ss*, mainly girls, who responded to the manifest content of the negative-emotion pictures but coped with the threatening emotions by de-emotionalizing the threat, constructing a neutral or positively toned endings. The negatively toned pictures seem to have been too threatening to elicit a content appropriate response from many of the children.

Response to Negative and Positive Emotion and Ambiguous Stimuli

Responses to pictures showing an obviously happy boy, an obviously angry boy, and an ambiguous scene of a boy walking through a door were compared for their relative pull power.

The three pictures are approximately comparable in the stimulus elements portrayed except for the differences in the affective expressions of the boys. The stories to the pictures were analyzed separately for the seven measures described above in an analysis of variance design in which age (2) and I.Q. levels (2) were the between-groups' variables and pairs of pictures, the within-groups' variable. All the findings reported below were significant at least at the 5% level.

The analyses indicated that the negatively toned picture elicited more emotional words and more statements of personal involvement (intraceptive comments) than were given to either positively toned or ambiguous pictures. The exceptions were the ambiguous stimulus which elicited more negative words than the negatively toned one, and the positive-affect card which elicited the highest mean number of positive words, as might be expected. With the exception of this latter instance, the positive-affect picture was the least productive stimulus presented.

DISCUSSION

The rationale to use in designing stimuli for a picture-story task has not been enunciated, much less tested systematically. The vague apperceptive premise underlying the use of picture-story materials does not specify the properties of the stimulus to be used, except that the stimulus be ambiguous. There must be further definition of the goals desired from this task and the strategies to use in employing these materials. For example, if a disturbed child were able to cope successfully with the strongly negative-emotion scenes in the structured series, wouldn't this suggest ego strengths more directly than the hit or miss process of depending on stimuli which permit easy avoidance because the ambiguity of meaning of the picture allows a variety of stories? Usual clinical practice has failed to consider the possible range of strategies which may be employed in the diagnostic use of picture-story materials, and has tended to ignore the contribution of the design of the stimulus to the story produced.

One artifact of the experimental design should be mentioned since it may be useful for other investigators. In the present design, the pictures in each series were alternated, which may have allowed a relatively easy avoidance of the negative pictures by the children and the possibility that these negative stories were projected onto the ambiguous pictures, influencing the results to an unknown degree. In evaluating story responses to pictures with particular characteristics, it may be critical to present a longer series of pictures of each type in a sequence and alternate the sequences presented. This strategy would seem to minimize contamination of results due to spill-over of feelings, since the series of pictures are compared as units.

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The Role of Visual Perception in the Reproduction of Bender-Gestalt Designs

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Summary: Four groups (controls, organics, acute and chronic schizophrenics) of 14 Ss each were matched for age, sex and intelligence. The principal tasks involved (1) reproducing the designs and (2) matching according to similarity a series of 8 design-choices with varying degrees of distortion from most-like to least-like the stimulus designs. The results confirmed the hypotheses (1) that perception of the B-G designs does not significantly differentiate between normal subjects and subjects manifesting psychopathology while (2) there exists a significant difference regarding reproduction of the designs between the groups. These findings are considered to be in agreement with current conceptualization of perception.

Bender describes her test as a visual motor test which produces "a visual pattern that reveals modifications in the original pattern by the integrating mechanisms of the individual who has experienced it" (Bender, 1938). But the perceptual principles on which the visual motor test is based are general and non-specific, and the relationship between visual (perceptual) and motor components of the task remains uncertain. Distortions in the reproduction of the designs may result from (1) misperception, (2) faulty reproduction (copying), (3) disturbance of integrative functions, or (4) a combination of all of these components. The results of reported investigations of such relationships (McPherson, M. W., & Pepin, L. A., 1955; Niebuhr, H., Jr., & Cohen, D., 1956) are contradictory and inconclusive. Experimental evidence and modern perceptual theories (Hebb, D. O., 1949; Lashley, K., 1933; Miller, Galanter & Pribram, 1960; Pribram, K. H., 1958) suggest that perception and action (motor performance) be regarded as input and output in a molar sequence mediated by processes of integration or coordination. In fact, as Billingslea (1963) points out, coordination of perception and motor function must be assumed as a basic characteristic of the integrated personality. (Compare also Piaget's sensory-motor schemata.) Such conceptualizations imply that in normal persons visual perception and motor performance on a perceptual motor task such as the Bender-Gestalt test function as coordinated components of a global pattern leading to congruence between stimulus design and reproduction. Psychopathological processes, however, appear to bring about impairment in the coordination of these components manifesting itself in deviant motor performance (distorted reproductions). These inferences suggest two hypotheses: (1) the *perception* of Bender-Gestalt designs does not significantly differ between normal subjects and subjects with psychopathology; (2) the *reproduction* of the designs differs significantly between normal subjects and subjects manifesting psychopathology. This study was designed to test these hypotheses utilizing a modification of Niebuhr & Cohen's matched-choice procedure.

METHOD

a) *Subjects:* The total sample comprises fifty-six subjects divided into four groups of 14 subjects each: (1) *Control group:* Psychiatric technicians, none of whom had a history of mental illness. Absence of psychiatric or neuropathological conditions was determined by psychological tests. (2) *Organics:* Patients hospitalized for neurological pathology at Kaiser Rehabilitation Center in Vallejo, California, none of whom had a history of previous hospitalization for mental disorders nor presented psychotic symptoms (Table I). (3) *Acute Schizophrenics:* Patients officially diagnosed as schizophrenic, with secondary symptom manifestations and without a history of prior hospitalization for mental illness or neuropathology. (4) *Chronic Schizophrenics:* Patients officially diagnosed as schizophrenic with secondary symptom manifestations and with prior hospitalization for mental illness without a history of neuropathology. The subjects in all four groups were matched for sex, age and intelligence (Table II).

b) *Material:* A number of deviant reproductions were copied from illustrations in Pascal and Suttell's monograph (1951), each one of them on cards exactly like the Bender-Gestalt stimulus card in thickness, size, shape and color. All designs were drawn

TABLE I—Type of Impairment in the Organic Group

Pt. No.	Sex	Age	Vocabulary Age (Shipley-Hartford)	Neurological Impairment
1	M	39	11.9	Paraparesis, essential paraplegia, chronic arachnoiditis
2	F	40	15.5	Multiple Sclerosis
3	M	19	17.8	Encephalopathy of unknown origin, degeneration, involving mainly the cerebellum
4	F	38	18.6	Left Hemi-Paresis, Cerebral Meningitis
5	M	46	16.6	Multiple Sclerosis
6	M	48	17.8	Cerebellar tract degeneration (spastic paraplegia)
7	F	35	16.2	Multiple Sclerosis
8	M	28	17.0	Brain infarction, left hemisphere, etiology unknown
9	M	41	19.4	Multiple Sclerosis
10	F	40	15.9	Multiple Sclerosis
11	M	19	13.1	Subdural Hematoma (acute)
12	M	50	18.2	Bilateral Brain Infarction (CVA)
13	F	47	20.2	Multiple Sclerosis
14	M	47	18.6	Multiple Sclerosis
Mean		38.36	16.91	
S.D.		9.71	2.23	

Note: We wish to acknowledge a debt of gratitude to Dr. Sedgwick Mead, Director, Rehabilitation Center, Kaiser Foundation Hospital, Vallejo, California, for his help in selecting and evaluating our organic sample.

TABLE II—Chronological Age and Vocabulary Age (Shipley-Hartford) of Subjects[a]

		Controls	Organics	Acute Schizophrenics	Chronic Schizophrenics
Chron. Age	Mean	38.50	38.36	38.79	37.64
	S.D.	9.71	9.71	9.22	9.76
Vocab. Age	Mean	17.36	16.91	16.61	15.66
	S.D.	1.81	2.23	2.83	2.88

[a] Subjects in each group: 4 females and 10 males.

with pencil. Six *deviant* reproductions were chosen for each of the nine Bender designs. These six choices were then ranked independently by the three experimenters according to the judged degree of similarity with the stimulus. Only such judgments were accepted in which all of the three judges concurred. Added to these six choices was a card with a nearly identical reproduction of the stimulus. Each of these choices was assigned a ranking score ranging from 1 (judged most like the stimulus card, which was, of course, the exact stimulus reproduction) to 7 (judged least like the stimulus card). Finally, the card containing the subject's own reproduction was included, increasing the number of total choices to eight for each design. The subject's own reproduction was added to the other choices in order to ascertain whether the subject's ranking of his own reproduction was in agreement with the degree of similarity or deviancy as determined by the Pascal and Suttell scoring method. The order of presentation of these eight choice cards was determined with the aid of a table of random numbers.

The level of intellectual functioning for each subject was determined by administration of the Shipley-Hartford test. The ability to respond to the test was accepted as proof that no visual impairment existed which could influence the performance in the experiment.

c) *Procedure:* Each subject was asked to copy the Bender designs in the usual manner but each one on a card exactly like the card with the stimulus and like the cards containing the choices. All nine Bender-Gestalt designs were administered. Each of the subject's reproductions was immediately identified by the experimenter on the back of the card. After the copying procedure the subject was asked to respond to the Shipley-Hartford test. In the meantime the experimenter added the subject's reproduction of each design to the seven choices for the same design. After the Shipley-Hartford was completed, the subject was presented with a stimulus card, one at a time in the usual sequence. Then the eight choices of the same design were put before the subject in the prearranged order and the subject was asked to select the card with the design which appeared to be *most* like the design on the stimulus card. The response time was recorded. The selected card was removed from the table and the rank order recorded. Then the subject was told to select the card with the design which seemed to the subject *least* like the design on the stimulus card. Again the response time was recorded, the selected card was removed, and the rank order recorded. Thereafter, the subject was instructed to order the remaining six choices from the one most like the stimulus card to least like the stimulus card. Again the rank order of choices was recorded. No attempt was made to ascertain response time for these six choices. This concluded the experiment.

d) *Scoring:* Two sets of scores for every choice and design were obtained for the matching task: One of these scores was obtained by adding the rankings so that a score of 9 (9 x 1) signified the best matching performance, and a score of 63 (9 x 7) indicated the poorest matching. The second matching score was determined by using the Pascal and Suttell (1951) scoring method to assign a numerical value to every choice.[1] These two procedures were adopted in order to be able to compare judgments (ranking) and empirical assessment (Pascal and Suttell scoring) of the matching performance. The ranking scores reflecting the experimenters' judgment were transformed into Pascal and Suttell scores by scoring every choice in accordance with the Pascal and Suttell system. For instance, the "best" choice which is most similar to the stimulus, received a ranking of 1 but a Pascal and Suttell score of 0 because of the absence of scorable deviations. The "worst" choice was given a ranking of 7 which corresponds to Pascal and Suttell scores ranging from 4 to 11. As is well known, the magnitude of the deviancy scores varies from design to design in the Pascal and Suttell scoring system. Table III contains a tabulation of ranking scores and corresponding Pascal and Suttell scores arrived at in the manner described above. As can be glanced from the table, the sum of the Pascal and Suttell scores generally increases in the direction from "best" to "worst". Slight inconsistencies in rank 2 and 3 as well as 4 and 5 reflect artifacts of the modified scoring system which does not take into account configurational deviations.

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[1] All choices were scored independently by two of the authors (Interscorer reliability = .89).

The authors regard the matching score (expressed in ranking or in Pascal and Suttell scores) as a measure of the perceptual component of the task.

The reproductions of the subjects were also scored by the Pascal and Suttell scoring method with the necessary omission of the configuration score because of the representation of each reproduction on a separate card. The authors regard the reproduction score as a measure of the motor component of the task.

RESULTS

The data were analyzed separately for (1) the matching (perception) task and (2) reproduction task (Table IV).

I. MATCHING

The analysis of variance method

TABLE III—Conversion of Rankings into Pascal and Suttell Scores

Ranking	Design 1	2	3	4	5	6	7	8	Total
1	0	0	0	0	0	0	0	0	0
2	2	2	2	0	5	0	0	0	11
3	2	5	0	0	3	0	0	0	10
4	16	2	3	3	3	3	3	5	38
5	2	5	3	7	4	5	7	3	36
6	5	4	8	8	2	6	8	7	48
7	10	7	5	11	10	5	4	10	62
Total	37	25	21	29	27	19	22	25	

TABLE IV—Analysis of Variance of Matching and Reproduction Task

Task	Group Means Controls	Organics	Acute Schizophrenics	Chronic Schizophrenics	F[a]
I. *Matching*					
a. Ranking First Choice	11.79	11.93	11.21	14.43	2.07
b. Pascal & Suttell First Choice	2.93	3.21	2.29	6.71	2.56
c. Average of (Pascal & Suttell) First and Second Choice	8.89	12.81	11.23	12.54	1.57
Fourth and Fifth Choice	30.89	30.46	31.89	30.81	.15
Seventh and Eighth Choice	41.96	48.32	43.01	41.68	2.56
II. *Reproduction* (Pascal & Suttell Modified)	20.57	38.79	33.00	31.07	3.85

[a] $n = 3$: $n_2 = 39$

indicated that no significant differences exist between the means of the four groups (Table IV). This is equally true whether the ranking score (F = 2.07) or the Pascal and Suttell score (F = 2.57) for the first choice (choice regarded most like the stimulus design) are considered or whether the average of the scores (using the Pascal and Suttell system) between the first and the second choice (F = 1.57), the fourth and fifth choice (F = .15), or the seventh and eighth choice (F = 2.56) are compared. The absence of significant group differences in the visual discrimination task not only with regard to the first choice but to the entire range of choices appears to reflect considerable constancy of the phenomenon.

No significant differences between the means of the four groups were obtained when the response time required for the first matching (indication of choice of the card regarded most like the stimulus) was considered (F = 2.29). These results as well as the good agreement between the ranking of the subject's reproductions and the degree of deviancy of these reproductions as determined by the Pascal and Suttell scoring method support hypothesis (1), e.g., no significant differences exist between normal subjects and subjects belonging to pathological groups with regard to visual discrimination of the Bender designs.

II. REPRODUCTION

Analysis of variance computations applied to the means of the reproduction scores of the four groups (Table IV) indicates that differences exist which are significant at better than the 5% level (F = 3.85). It must be considered here that the omission of the Pascal and Suttell configuration score, necessitated by the design, tends to underestimate the actual size of the differences. Applying the t-test, the following results were obtained: The difference between the means of the controls and the organics as well as between the means of the controls and the acute schizophrenics is significant at the 1% level, while the difference between the means of the controls and the chronic schizophrenic is significant at the 5% level. No significant differences were found between the means of the acute and the chronic schizophrenics nor between the means of the acute schizophrenics and the organics, or between the means of the chronic schizophrenics and the organics (Table V). These results confirm our second hypothesis that significant differences exist regarding reproduction of the Bender-Gestalt designs between normal controls and the pathological groups.

DISCUSSION

The lack of significant differences between the means of the control and the pathological groups in the performance of the perceptual task supports our first hypothesis that (1) psychopathology as it is inferred from deviant reproduction of the Bender designs is primarily related to factors other than visual perception. The

TABLE V—Mean Differences Between Groups (t-tests)

	Controls	Organics	Acute Schizophrenics	Chronic Schizophrenics
Controls				
Organics	3.88*)			
Acute Schizophrenics	3.51*)	.69		
Chronic Schizophrenics	2.09**)	1.45	.31	

*) = Significant at the 1% level
**) = Significant at the 5% level

evidence of significant differences between the group means in the reproduction task argues in favor of our second hypothesis that (2) deviant performance on the copying task reflects more conspicuously defects in motor and/or integrative functions. Indeed, sensory feedback may lead to an experience of incongruence between perception and reproduction. This phenomenon, clinically referred to as perplexity and impotence, is observed frequently in the performance of patients with neurological disorders. The conclusion that visual components only minimally influence Bender-Gestalt test performance seems to provide the answer to the question regarding the relationship between perceptual and motor efficiency which Niebuhr and Cohen (1956) raised but considered unresolved by their study, namely that perceptual efficiency appears only minimally affected regardless of degree and kind of pathology as far as Bender-Gestalt performance is concerned. The results of the present study contrast with Niebuhr and Cohen's (1956) findings that "perceptual efficiency as well as adequacy of motor reproduction decreases with the severity of pathology." The difference in results reported by Niebuhr and Cohen (1956) and the present authors is probably attributable to characteristics of Niebuhr and Cohen's (1956) design such as their failure to apply more rigorous selection criteria (particularly for their organic group), to match for age, sex and intelligence (no intelligence estimate indicated for the subjects in the organic sample) and to test their assumption of equal weights among the various scoring categories for the perceptual task. However, from the finding that pathology is reflected in the reproduction of the Bender-Gestalt designs it cannot be implied that motor function per se is impaired in psychopathology. It is possible that the motor function as such does not contribute any more to the deviancy in performance than the visual function. Conceivably, the evidence of pathology contained in the reproduction of the clinical group points to defects in integrative functions such as are hypothesized by Hebb (1949), Pribram (1958), or more recently by Miller, Galanter and Pribram (1960). Such an assumption is in good agreement with clinical experience concerning the usefulness of the test for the detection of both neurological and functional pathology.

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Experimenter Behavior as an Unintended Determinant of Experimental Results[1]

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Summary: Sound motion pictures were made of 19 *Es* conducting a person perception experiment with 53 *Ss*. *Ss'* task was to rate the degree of success or failure of people pictured in photos. From some of the *Ss*, *Es* had been led to expect ratings of success and from some ratings of failure. Actually, *Ss* were assigned at random to the "success-perceiving" or "failure-perceiving" group. *Es* showed significant behavioral variation in the way in which they conducted the experiment. *Es* whose experimental behavior reflected greater interpersonal involvement or warmth obtained ratings of the photos as more successful. *Es* whose experimental behavior reflected a greater task orientation, greater competence, and a more professional manner obtained ratings significantly more in accordance with their expectancy, regardless of the particular nature of that expectancy.

A number of recent studies have demonstrated the existence of phenomena which have been called "experimenter effect" and "experimenter bias" (Rosenthal, 1963). Experimenter effect occurs when different experimenters obtain different data from comparable subjects. It has been demonstrated in studies of the galvanic skin response (Rankin & Campbell, 1955), verbal conditioning (Sarason, 1965), projective techniques (Masling, 1960), memory (Young, 1959), interviewing (Hyman, Cobb, Feldman, Hart & Stember, 1954), rats (Maier, 1956), rabbits (Brogden, 1962), and even planaria (Rosenthal & Halas, 1962). Experimenter bias occurs when experimenters obtain from their subjects the data which they expect to obtain. It has been demonstrated in studies of the maze-learning and operant conditioning of rats, and in studies of the person perception and verbal conditioning of humans (Rosenthal, 1963).

Although their occurrence has been established, little work has been done on the mediation of experimenter effect and experimenter bias. What do experimenters do to obtain different responses from comparable subjects? How are experimenters able to get the data they expect? These are the questions to which this paper is directed.

But it is not directed to these questions alone. To study the mediation of experimenter effect and experimenter bias is to raise basic methodological questions, for within the traditional view of psychological experimentation there is no room for such a mediation process. Ideally, experiments are supposed to be controlled, standardized, and replicable. Ideally, experimenters are supposed to be inflexible, programmed, and interchangeable (Riecken, 1962). Hence, an inquiry into the mediation process is also an inquiry into that philosophy of psychological experimentation in which the experimenter is, in McGuigan's (1963) terminology, a neglected stimulus object, or, in Goffman's, (1956) a non-person. Such inquiry is of prime importance, since a major source of firm psychological

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[2] The first author is now at Miles College, Birmingham, Alabama and the second author is now in New York City.

knowledge is the experiment. To an ever increasing degree, our understanding of human behavior is based upon the results of experiments. Thus, it is necessary that we be certain that an experiment is just what it is supposed to be.

Our purposes are both substantive and methodological in nature. Substantively, to investigate the mediation of experimenter effect and experimenter bias in a specific experimental situation by observing and analyzing that situation with the aid of sound motion pictures. Methodologically, to indicate the larger implications of the existence and dynamics of these phenomena and to suggest how they may be controlled.

METHOD

Procedure

Nineteen experimenters (*Es*) engaged 53 subjects (*Ss*) in a person perception task.[3] The task called for each *S* to rate the degree of success or failure experienced by the person pictured in each of ten photographs. In an effort to standardize the manner in which the task would be presented, *Es* were carefully instructed in their procedure. In the *face sheet period* of the experiment, *E* was to ask for *S*'s name, age, marital status, field of concentration, and class. Having recorded these preliminaries, *E* was to read to *S* the following instructions from a mimeographed sheet:

"I am going to read you some instructions. I am not permitted to say anything which is not in the instructions, nor can I answer questions about this experiment. OK?

"We are in the process of developing a test of empathy. This test is designed to show how well a person is able to put himself into someone else's place. I will show you a series of photographs. To help make more exact judgements you are to use this rating scale. As you can see, the scale runs from −10 to +10. A rating of −10 means that you judge the person to have experienced extreme failure. A rating of +10 means you judge the person to have experienced extreme success. A rating of −1 means that you judge the person to have experienced mild failure, while a rating of +1 means that you judge the person to have experienced mild success. You are to rate each photo as accurately as you can. Just tell me the rating you assign to each photo. All ready? This is photo #1."

At the time that the first photo was raised, the *instruction period* ended and the *rating period* began. The *S* was to rate each of the 10 photos. *E* had been instructed to allow *S* a maximum of five seconds in which to make each rating. *E* had been further instructed to say to the *S* only what was on the instruction sheet, plus hello and good-bye at the proper times.

Experimenters

All 19 *Es* were male graduate students enrolled in a course in advanced educational psychology at the University of North Dakota. All were working toward advanced degrees in education and guidance. All were volunteers who had never before acted as data-collectors in this task. Modally, each *E* contacted three *Ss*.

Subjects

The 53 *Ss*, 80% females, were enrolled in beginning undergraduate courses in psychology, English, education, history, and government at the University of North Dakota summer session. *Ss* were a mixed group of volunteers and non-volunteers, all of whom were naive to the experimental task.

Treatment Conditions

All *Es* first administered the photo rating task to *Ss* for whom they had been given no expectancies. Before running their subsequent *Ss*, *Es*' expectancies concerning the photo ratings these *Ss* would give them were systematically varied by the following statement:

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[3] The number of *Ss* actually run in this experiment was 73 of which the 53 *Ss* mentioned here represent that randomly drawn subsample whose participation in the experiment was filmed (Rosenthal, Persinger, Mulry, Vikan-Kline, & Grothe, 1964).

"According to several personality tests we have given the subjects, we are able to predict how they will rate the photos. Some of these subjects tend to rate the photos on the average extremely high, and some to rate them extremely low. The next subjects that you will run should average a +5 (—5) which is a pretty high (low) average, (if you follow instructions and the proper experimental procedure."[4]

Half the *E*s first contacted "success-perceiving" (+5) *S*s followed by "failure-perceiving" (—5) *S*s, and half the *E*s received expectancies in the opposite order. Actually, of course, *S*s were assigned to *E*s at random, and the mean rating of the photos actually to be expected from all *S*s was approximately zero as determined by the original standardization group (Rosenthal & Fode, 1963).

Filming Procedure

Unknown to either the *E*s or their *S*s, the fifty-three sessions were filmed. All *E*s met their *S*s in a room measuring about fifty feet by twenty feet. *E*s and *S*s sat at a trapezoidal table specially placed at one end of the room. *E* sat at the shorter length of the table; *S* sat at his side and to his left. Both *E* and *S* faced in the direction of the distant opposite wall behind which a soundproof room, containing a camera and camera-man, had been constructed.

The filming was done with a 16 mm Bach Auricon Pro-600 sound movie camera, equipped with a Pan Cinor "Zoom Lens".[5] The tripod-mounted camera focused on the *E* and *S* through an eight-inch square, double-glass window built into the wall of the filming booth. This window, shuttered manually by the camera-man, was camouflaged by a glass encased, false-backed bookcase containing books and empty picture frames in disarray. The picture frames were included to render the frame of the filming window inconspicuous. The overhead flourescent lighting in the experimental room reflected off the glass bookcase, further concealing the filming window.

A microphone, connected to the camera's audio system, was concealed in the hollow motor case of an eight-inch electric fan fastened to the ceiling directly above the table at which *E* and *S* were seated. The coaxial cable connecting the microphone to the camera equipment was disguised as a common extension cord from the fan to a wall socket.

To test the success of the camouflaging, a number of graduate students and faculty members were asked to sit in the chairs intended for *E*s and *S*s and were invited to locate the camera and microphone. None was able to do so. When permitted to approach within a few feet of the filming window, however, they were able to see the camera when the shutter covering the camera port was fully open. A number of tables were consequently placed between the table and the filming window to discourage exploratory behavior.

As it turned out, no *E*s stepped across an imaginary line extending out from the forward edge of their work table. There were, however, a few *S*s whose eyes fixed on the bookcase long enough to cause uneasiness on the part of the camera-man. When this occurred, a post-experimental interview was conducted with the *S*. These interviews suggested that while some *S*s might have suspected that the true intent of the experiment was being withheld, none suspected that he was being observed. Following these interviews, no increase in the tendency for *Ss* to look at the bookcase was detected. Similarly, later-run *Es* showed no curiosity about the far-side of the room beyond that of earlier-run *Es*. It seems safe to conclude that the filming proceeded undetected.

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[4] *E*s ran either all male or all female *S*s. For seven of the 15 *E*s running female *S*s, the last clause (in parentheses) was omitted. The effects of those two variables, the consideration of which is not relevant to this paper, are discussed in detail elsewhere (Rosenthal, Persinger, Mulry, Vikan-Kline, & Grothe, 1964.

[5] Scott Bryce, Clayton Ness, and James Woolsey, all of the University of North Dakota television studio gave invaluable advice and assistance in all technical aspects of the filming procedure. Without their help, the basic data could not have been collected.

In the filming, *E* was the focus and the camera seldom left his face and trunk. *S*'s face and trunk were filmed most of the time but were not filmed when the camera "zoomed" in for a tighter close-up of *E*. From time to time the camera moved back for a shot showing full length views of both *Es* and *Ss*.

On the average, each film pictured a single *E* meeting three *Ss*, one in each of the three conditions: no-expectancy, plus five (+5) expectancy, and minus five (−5) expectancy. In some cases, however, the film ran out during the later part of the third dyad. On the few occasions when the earlier dyads proceeded extremely slowly, the film was stopped to allow space for at least some observation of later dyads in the other expectancy conditions. As a result, not all the observations desired were available on film for all *Ss*. This accounts for the fact that not all findings in the results are based on equal *N*s.

Analysis of the Films

The processed films (altogether 7200 feet of Kodak Tri-X Reversal Film) are being observed from many different angles. We will report here two independently carried out analyses which complement each other. They will be referred to as the "more molar" and "more molecular" observations respectively.

The more molar observations were made by the five original investigators.[6] For every completely or partially filmed contact with an *S* each *E* was rated for the degree to which he was: (1) *dominant* (clearly in charge of the situation); (2) *likeable* (liked by the observer); (3) *active* (manifesting gross and non-essential movements); (4) *professional* (showing "professional good form" in his role as *E*); (5) *friendly* (friendly to his *Ss*.)

For each of these five global variables, ratings could range from "1" (e.g. minimally dominant) to "10" (e.g. maximally dominant). No effort was made to be more precise in either the definitions of the variables or of the rating scale. After all the films had been viewed once, a subsample of five films was rerated. The mean test-retest reliability was found to be .87.[7]

One year later a new group of five observers, totally blind to the treatment conditions and experimental results, made the following more molecular ratings of all films:

(1) *E* glances: the number of times *E* glances at *S*.

(2) *E* smiles: the number of times *E* smiles at *S*.

(3) *E* body tilt: the extent to which *E*'s body deviates from the perpendicular to the long axis of the work table. Rated on a three point scale in which the higher number indicates a greater degree of tilt toward *S*.

(4) *E* body activity: the extent of *E*'s gross body activity excluding head movements. The more frequent, more lengthy and larger the activity, the

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[6] Rosenthal, Persinger, Mulry, Vikan-Kline, & Grothe, 1964).

[7] The median correlation between the ratings of the original five observers and ratings made by a young chemist who knew nothing about the experimental design was about .50. Because of bookkeeping error, inter-judge reliabilities among the original five observers could not be computed. Ratings made by these five observers can be only tentatively accepted because these observers had been involved in the data collection process. All believed themselves to be "blind" to the experimental conditions and the ratings given by *Ss*, but there is no way of assessing the degree to which they were "really" blind. During the viewing of the films the sound track was, of course, turned off so that observers could not hear *Ss*' responses.

higher the rating assigned on a ten point scale.

(5) *Time*: the duration of each period of the experiment recorded to the nearest tenth of a second.

Each of these ratings was made separately for the face sheet, instruction, and rating period of the experiment. By adding the ratings from these three periods, an overall rating for the total experiment was obtained.

For the following more molecular variables, observations were recorded only during certain specific periods:

(6) *Exchanged glances*: the number of times *E* and *S* glanced at each other simultaneously. Recorded for the face sheet and instruction periods.

(7) *Correctness of instruction*: how correctly *E* read the instructions. Rated on a two point scale in which the higher number indicates the more accurate reader.

(8) Time to "OK" and (9) Time to "All ready?": The duration of the reading of each of the two paragraphs of the instructions, respectively, recorded to the nearest tenth of a second.

For these nine more molecular variables observations were made only if the period had ben completely filmed. Interjudge reliabilities of about .80 were obtained on all scales.

The two dependent variables were: (1) the mean photo rating given by each *S*; and (2) the *S*'s bias score. The *S*'s bias score was defined as follows: When *E* had a +5 expectancy, the *S*'s bias score was his mean rating of the photos minus the grand mean photo rating of all the *S*s for whom that *E* had a −5 expectancy. When *E* had a −5 expectancy the *S*'s bias score was his mean photo rating subtracted from the grand mean photo rating of all the *S*s for whom that *E* had a +5 expectancy.

Hypotheses

The most general hypothesis of this study was that in the experimental interaction *Es*' behavior varies in an unintended manner. The more specific hypotheses were that (1) some of these unintended variations in *Es*' behavior mediate experimenter effect and (2) some of these unintended variations in *Es*' behavior mediate experimenter bias.

The first hypothesis is tested by the correlations between *Es*' behaviors and *S*'s photo ratings. The second hypothesis is tested by the correlations between *Es*' behaviors and *Ss*' bias score.

RESULTS

Experimenter Effect

Table I shows the correlations between the more molecular ratings of *Es*' behavior and *Ss*' photo ratings (*E* effect). Considering first the face sheet period, when *E* showed more body activity, he obtained ratings from his *S* ($r = +.36$, $df = 50$; $p <$

TABLE I—Correlations between More Molecular Experimenter Behavior and *Ss*' Photo Ratings

	Period			
Variable	*Face Sheet*	*Instruction*	*Rating*	*Total*
1. E glances	−.12	+.27*	.00	+.05
2. E smiles	+.05	+.13	+.08	+.14
3. E body tilt	.00	+.24	+.31	+.32
4. E body activity	+.36***	+.10	+.11	+.36*
5. Time	+.01	+.45****	+.38*	+.49***
6. Exchanged glances	+.10	+.36***		
7. Correctness of Instruction		−.05		
8. Time to "OK"		+.36***		
9. Time to "All ready"		+.47****		

Note: In this table, and in subsequent tables, similar *r*s may have different associated *p* levels because of variation in *df*.

*$p \leq .05$ ***$p \leq .01$ ****$p \leq .001$

.01). The five "significant" ($p \leq .05$) correlations in the instruction period indicate that *S* rated photos as being of more successful people when in that period (1) *E* glanced more at him ($r = +.27$, $df = 51$, $p \leq .05$), (2) exchanged more glances with him ($r = +.36$, $df = 51$, $p \leq .01$, (3) took longer to read the entire instructions to him ($r = +.45$, $df = 51$, $p \leq .001$), and read the (4) first paragraph and (5) second paragraph of the instructions more slowly ($r = +.36$, $df = 47$, $p \leq .01$; and $r = +.47$, $df = 46$, $p \leq .001$, respectively). More postive ratings were also obtained by *Es* who proceeded more slowly in the rating period ($r = +.38$, $df = 33$, $p \leq .05$) and by those *Es* who, over the course of the entire experiment proceeded more slowly ($r = +.49$, $df = 33$, $p \leq .01$) and showed more body activity ($r = +.36$, $df = 33$, $p \leq .05$). In addition, there was a tendency for *Ss* to rate the photos as being of more successful people if *E* had tilted more in their direction during the instruction period, the rating period, and the total experiment ($p < .10$ in each case).

Table II shows that the basic four molecular variables which, for any period of the experiment, significantly ($p \leq .05$) predicted *S* response were themselves significantly intercorrelated with a median *r* of +.41, $p < .02$), thus forming a cluster.

How shall we interpret this cluster? We suggest that *Es* who proceeded more slowly and actively through the experiment and who looked at and exchanged glances more often with the *S* may be considered more interpersonally-oriented than task-oriented. They seem to personalize the data-gathering session and turn it into a sociable interaction. This impression is reinforced by a consideration of the more molar variables (Table III).

Those *Es* rated higher on our cluster of "interpersonal involvement" variables, were rated on the global scales as less in charge of the situation (dominant) $r = -.50$, $df = 35$, $p < .01$) and as less professional in manner ($r = -.40$, $df = 35$, $p < .02$). These two global ratings of *Es'* behavior were, furthermore, correlated with the photo ratings obtained by *Es*. *Es* whose behavior was rated as less professional ($r = -.35$), $df = 51$, $p < .01$) and to a less significant extent, as less dominant ($r =$

TABLE II—Intercorrelations Among Four Predictors of *Ss'* Photo Ratings

	E glances (Instructions)	*E* body activity (Total)	Time (Total)
E body activity (Total)	+.24		
Time (Total)	+.51***	+.39**	
Exchanged glances (Instructions)	+.50****	+.33*	+.43***

*$p \leq .05$ **$p \leq .02$ ***$p \leq .01$ ****$p \leq .001$

TABLE III—Correlations between More Molar Experimenter Behavior and More Molecular Experimenter Behavior and *Ss'* Photo Ratings

Molar E Behavior	*Ss' Photo Ratings* $df = 51$	Molecular Experimenter Behavior *E glances* (Instructions) $df = 51$	*E body activity* (Total) $df = 33$	*Time* (Total) $df = 33$	*Exch. Gl.* (Instr.) $df = 51$	Median $df = 33$
Dominant	−.26	−.21	−.49***	−.50***	−.52****	−.50***
Likeable	+.09	+.46****	−.17	+.10	−.05	+.03
Active	+.18	+.24	+.49***	−.09	+.28*	+.26
Professional	−.35***	−.31*	−.54****	−.35*	−.45****	−.40**
Friendly	+.13	+.54****	+.26	+.23	+.15	+.25

*$p \leq .05$ **$p \leq .02$ ***$p \leq .01$ ****$p \leq .001$

$-.26$, $df = 51$, $p < .10$), obtained from their *Ss* more positive ratings of the photos. Thus, both more molar and more molecular ratings of *Es'* behavior during the experiment predicted *Ss'* responses to the experimental task and the two kinds of observations were related to each other, as we might expect.

Experimenter Bias

Table IV shows the correlations between the more molecular ratings of *Es'* behavior and the degree to which *Ss'* photo ratings were influenced in the direction of *Es'* expectancies (*E* bias). In the face sheet period when *E* showed more body activity he biased less ($r = -.37$, $df = 33$, $p \leq .05$). The three "significant" ($p \leq .05$) correlations in the instruction period indicate that *S*'s responses were more biased when in that period (1) *E* exchanged fewer glances with him ($r = -.41$, $df = 34$, $p \leq .02$), (2) *E* read him the first paragraph of the instructions more rapidly ($r = -.43$, $df = 31$, $p \leq .02$), and (3) *E* read him the instructions with fewer errors ($r = +.42$, $df = 34$, $p \leq .02$). In addition, there was a tendency for *Ss'* responses to be more biased when *E* tilted less toward his *Ss* during the instruction period and proceeded more rapidly in his reading of the entire instructions ($p \leq .10$ in each case).

Table V shows the intercorrelations among the four molecular *E* behaviors which significantly ($p \leq .05$) predicted the degree to which *S*'s responses would be influenced in the direction of *E*'s expectancies. In order to permit an estimate of the median intercorrelation, the correctness of instruction variable has been reflected (i.e. the signs of the correlations reversed) so that it represents inaccuracy in reading the instructions. Just as the variables predicting *Ss'* photo ratings were significantly intercorrelated so the variables predicting *S* susceptibility to *E* bias also formed a cluster. The median r of +.29 was significant at the .05 level.

Again we have the problem of interpreting the cluster. It seems reasonable to suggest that *Es* who proceeded more rapidly and more accurately through the instructions while exchanging fewer glances with the *S* and showing less body activity in the face sheet period may be viewed as

TABLE IV—Correlations between More Molecular Experimenter Behavior and *Ss'* Bias Score

Variable	*Period*			
	Face Sheet	*Instructions*	*Ratings*	*Total*
1. *E* glances	+.24	—.14	+.09	+.17
2. *E* smiles	+.09	—.10	—.29	—.25
3. *E* body tilt	—.26	—.28	—.21	—.25
4. *E* body activity	—.37*	—.11	+.14	+.02
5. Time	—.04	—.28	—.06	—.06
6. Exchanged glances	+.29	—.41**		
7. Correctness of instruction		+.42**		
8. Time to "OK"		—.43**		
9. Time to "ALL ready"		—.28		

*$p \leq .05$ **$p \leq .02$

TABLE V—Intercorrelations Among Four Predictors of *Ss'* Bias Score

	E body activity (Face Sheet)	*Exchanged glances (Instructions)*	*Incorrectness of Instructions*
Exchanged glances (Instructions)	+.25		
Incorrectness of Instructions	+.23	+.41***	
Time to "OK"	+.16	+.37**	+.33*

*$p \leq .02$ **$p \leq .01$ ***$p \leq .005$

less involved with the interpersonal aspects of the interaction and more attentive to the task at hand. They seem to depersonalize the data-gathering session and keep it from turning into a sociable interaction. This impression is reinforced by a consideration of the more molar variables (Table VI).

Those *Es* who were viewed as less business-like and less task-oriented were typically rated on the global scales as being less in charge of the situation (dominant) ($r = -.41$, $df = 47$, $p \leq .01$) and less professional in manner ($r = -.47$, $df = 47$, $p < .001$). These two global ratings of *E*'s behavior were, in addition, correlated with magnitude of *Es*' biasing influence on *Ss*. *Es* rated as more dominant ($r = +.57$, $df = 34$, $p \leq .001$) and more professional ($r = +.46$, $df = 34$, $p \leq .01$) biased their *Ss* more. Just as in the prediction of *E* effect, both the more molar and more molecular ratings of *Es*' behavior during the experiment predicted the degree to which *E* biased his *Ss*, and, again, the two kinds of observations complement each other nicely.

The Relationship between E Effect and E Bias. The fact that those *E* behaviors which are associated with obtaining high photo ratings from *Ss* tend also to be related to *E*'s not obtaining the data he expects, suggests that there would be a negative and possibly large correlation between *E* effect and *E* bias. Such was not the case. Indeed, the correlation between *E* effect and *E* bias was both small and positive ($r = +.10$). The magnitude of photo ratings obtained by *E* is, then, only trivially related to the degree to which *E* obtains the data he expects.

S Instruction as a Critical Period. Finally, we should note that of the three periods of the experiment – face sheet, instruction, and rating – it was the instruction period during which *Es*' behavior had its greatest effect on both the absolute magnitude of *Ss*' response and the degree to which that response was in accordance with *Es*' expectancy. To a great extent it appears that *E*'s effect and his bias are communicated to his *Ss* before *Ss* begin to perform their experimental task. This finding supports the results of an earlier study which showed the effects of *E* bias to be in evidence before *S* had made any task response which might have been unintentionally and differentially reinforced by *E* (Rosenthal, Fode, Vikan-Kline, & Persinger, 1964).

DISCUSSION

The results of this study clearly support our most general hypothesis that *Es*' behavior varies in an unintended manner. Without such variance, of course, no significant correlations between *E* behavior and either *E* effect or *E* bias could have been obtained.

Experimenter Effect

The finding that *Ss* treated in a more attentive, involved, and perhaps warmer manner by their *Es* gave higher photo ratings fits well with observations of *Es* who were

TABLE VI—Correlations between More Molar Experimenter Behavior and More Molecular Experimenter Behavior and *Ss*' Bias Score

		Molecular Experimenter Behavior				
Molar E Behavior	*Ss' Bias Score* $df = 34$	*E body Activity* (Face Sheet) $df = 50$	*Exchanged glances* (Instructions) $df = 51$	*Incorrect. of Instr.* $df = 51$	*Time to "OK"* $df = 47$	*Medi* $df = 4$
Dominant	+.57****	−.44****	−.52****	−.24	−.38***	−.41***
Likeable	+.21	−.05	−.05	−.09	−.14	−.07
Active	−.17	+.50****	+.28*	+.26	+.04	+.27
Professional	+.46***	−.51****	−.45****	−.48****	−.26	−.47***
Friendly	−.22	+.44****	+.15	+.12	+.12	+.14

$^{*}p \leq .05$ $^{**}p \leq .02$ $^{***}p \leq .01$ $^{****}p \leq .001$

asked to intentionally influence their *Ss'* photo ratings. "If they were trying to influence positive ratings, they were friendlier in general, smiled more and were more 'accepting.' They behaved in cooler fashion when after negative ratings." (Rosenthal, 1964, p. 20).

That *Ss* rate photos as being of more successful people when treated more warmly by their *Es* seems best interpreted by a projection hypothesis. Perhaps *Ss* experiencing more interpersonal "success" in their interaction with *E* perceive more success in photos. *Ss* treated more "positively" by their *Es* may tend to perceive others more positively.

We should not expect the experimenter's position on a warm-cold dimension always to be the crucial mediator of experimenter effect. It seems more likely that for different experimental tasks different *E* behaviors will be associated with variation in *S* performance. For some tasks, like this person perception task, *E* may be able simply to "act out" the behavior he will then tend to obtain from his *Ss*. For other tasks, very different patterns of variation in *E*'s linguistic, paralinguistic, and kinesic behavior may serve as partial determinants of *Ss'* responses. Investigation of such variation in other experimental situations seems clearly indicated.

Experimenter Bias

Those *E* behaviors which best predict *Es'* unintentional influence of their *Ss'* responses in the direction of *Es'* expectancies may best be subsumed under the more global construct of professionalness. But why should more professional *Es* bias their *Ss'* responses more? The more professional *E* is likely to acquire a higher status in the eyes of his *Ss*, and status, in a variety of contexts, has been found to be positively correlated with effectiveness at interpersonal influencing (Rosenthal, 1964).

In addition, there may be some relatively unique characteristics of the experimental situation which can help to explain why more professional *Es* are more likely to obtain the data they expect to obtain.

One characteristic of the experimental situation which has been stressed by Orne (1959) is *S*'s special motivation to contribute something to science by his agreeing to serve as *S*. "Since the experimenter is perceived as knowing what he is doing, furthering 'progress in science' may well be equated with 'making the experiment work' or, in more sophisticated terms, having his individual performance support the hypothesis of the experiment" (Orne, 1959, p. 281). But whether, and to what degree, *E* is perceived as knowing what he is doing depends upon how professionally he transacts his business with *S*. By his no-nonsense manner, the more professional *E* impresses *S* with the scientific seriousness of the experiment. Perceiving the validation of *E*'s hypothesis as furthering scientific progress, *S* will, therefore, be more sensitive to *E*'s covert communication of his hypothesis and more inclined to give *E* the response he expects.

Of course, as those experimenters who have encountered more apathetic, intransigent, and deviant subjects can testify, not all *Ss* are motivated by their desire to further science. There is, however, another *S* motivation which may be even more general and which may also help explain why our more professional experimenters were more likely to get the data they expected.

Riecken (1962) has spoken of the experimental *S*'s need to "put his best foot forward" and Rosenberg (1965) has called attention to *S*'s "evaluation apprehension". Although people generally want to be evaluated favorably there are special pressures for such favorable evaluation in the experimental situation. *E* may be a scientist, a professor, and a psychologist who is credited with knowing more than *S* likes to believe possible about people in general and *S* in particular (Riecken, 1962). E's favorable evaluation of S is, therefore, the more important to S as E shows himself by his experimental behavior to be more like any of these high status persons. To the extent that E shows himself to be fully professional, S is likely to care whether he is favorably evaluated by E, and be sensitive to covert E communication. If aware of a less professional E's expectancy, S may give E data opposite to that expected, for the E who is less professional can not, after all, exercise the same degree of "fate control" over S that a more fully professional E could exercise.

Differential Communication of Expectancies. We know that to be an effective "biaser" E must behave professionally. But in this experiment an effective biaser by definition must obtain different data from different Ss as a function of his expectancy. Within the context of being more professional what behavior does E vary? Thus far we cannot answer that question. In our discussion of E effect we indicated what E behaviors led to more positive or more negative photo ratings. Logically, we might expect effective biasers to be those more professional Es who were warmer, with those Ss from whom they expected more positive photo ratings. Unfortunately, our data suggest that this was not the case. The variation in E behavior, shown by the same E contacting different Ss, was far less than the variation shown by different Es contacting comparable Ss. Perhaps for this reason, these small within E variations in behavior were not associated with E's obtaining differential data from his Ss in accordance with his expectancy.

The unsolved problem of differential communication of expectancies to different Ss by the same E is currently under investigation. It may be that E behaviors of a linguistic, paralinguistic or kinesic nature which have not yet been fully investigated will turn out to provide us with an answer.

The Generality of Experimenter Variability

We know that variability of experimenter behavior occurs and makes a difference in a person perception experiment. We have no filmed evidence that such variability occurs in other experiments or that such variability, if it did occur, makes any difference. But it does appear reasonable to suggest that such variability may occur in virtually any experiment requiring an E - S interaction and that it may make a difference in the results of the experiment.[8]

The next question of generality concerns our Es. Would other, "realer," Es show similar variation in their experimental behavior? That is, were we merely saddled with "bad" Es? Although our graduate student Es were not professional data-collectors, they were not so dissimilar from Es who collect data for "real" experiments. To an ever increasing degree, data are collected by graduate student Es and even undergraduate student Es. It does not, then, seem far-fetched to generalize our findings to other samples of Es. It may even be, in line with our findings, that more fully qualified, more professional Es might show a greater biasing effect upon their Ss than did our sample of Es.

THEORETICAL AND METHODOLOGICAL IMPLICATIONS

At the beginning of this paper we suggested that within the traditional view of psychological experimentation there was no room for a process o mediation of E effect and E bias. E have been regarded ideally as i flexible, programmed, and interchangeable. But the careful observ tion of E behavior which sound film make possible suggests that this vie of Es is untenable. To varying d grees, our Es improvised, interpolate and ad-libbed. Riecken (1962) an Orne (1959) were right to stress th social psychological nature of the ps chological experiment. The view of *E* as an interacting member of a dyadic relationship showing behavioral variability is the truer picture, a picture which has important implications for our understanding of the results of psychological experiments.

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[8] An extended discussion of this is to fou in Friedman (1964).

When a journal report states, for example, that "the instructions were read" it does not specify, nor allow for variation in, how they were read. Yet our data suggest that just such variation may significantly affect the results of the experiment. And most of such variation in *E* behavior (e.g. tone of voice, gestures, posture, tempo) while not bargained for, cannot be attributed to ineptness. Where there are no rules for conduct there can be no infractions. And where there are crude rules implicity agreed upon by researchers they are so broad and general (e.g. "treat all *Ss* similarly") that they cannot adequately serve their function of standardizing *E* behavior in the experiment.

The variability of *E* behavior in the experiment is not all bad. After all, there have been successful replications of psychological research which appeared to transcend the individual differences in *E* behavior. And this is all to the good in Brunswik's (1956) sense that the generality of phenomena is increased if different *Es* can be shown to obtain similar results.

Even that variability of *E* behavior which can be shown to alter *Ss'* responses significantly may not be too damaging. Suppose an *E* wants to compare the effects of two conditions on *Ss'* photo ratings. Even if he tends to obtain ratings that are "too" high from his *Ss* he would not bias the results of his research if he did not treat experimental and control *Ss* differentially.

But the problem of *E* bias is more serious. The biased *E* affects not the mean response obtained from his *Ss*, but the difference between responses obtained from the *Ss* of his experimental and control groups.

On the basis of the results of this and earlier studies of *E* bias we may tentatively offer the following suggestions for the minimization of *E* bias:

(1) *Es* should contact the *Ss* of the various experimental conditions "blind," i.e. without awareness of *Ss'* group membership.

(2) Whenever reasonably feasible, *Es* should employ automated data-collection set-ups (e.g. tape-recorded instructions).

(3) As much as possible, the data-recording itself should be done mechanically or, if not, then by *Ss* rather than by *Es*.

(4) Since automated data-collection may be impractical in some social and personality research, at least sources of visual cues from *E* to *S* may be reduced by interposing a screen between *E* and *S*.

(5) As a general principle samples of *Es* rather than single *Es* should be employed as data-collectors. Idiosyncratic expectancies thereby have a better chance of being randomized and to some extent cancelled out. *E* expectancies can also be assessed and their effects "corrected" statistically by the use of such procedures as partial correlation and analysis of covariance. Even if no bias were ever present, the use of larger samples of *Es* would tend to increase the generality, and hence the replicability of our research.

(6) On a sampling basis, *E* - *S* interactions should be monitored by the use of direct observation, tape-recording, silent filming, or, most preferably, sound-filming. This would permit that leisurely analysis of *E* behavior which would not only tell us what sort of stimulus *E* was, but also how he might have communicated his expectancy to his *Ss* if indeed he did. Variation in *E* behavior may also be controlled statistically if samples of *Es* have been monitored.

(7) A special form of control, "The Expectancy Control Group," should be widely employed. In the typical experiment *E* expectancy is con-

founded with treatment condition. The experimental group is expected to give a certain critical response while the control group is expected not to do so. In the Expectancy Control Group procedure the experimental and control groups are subdivided. Half the *S*s in the experimental group are contacted by *E*s who expect no critical response. Half the *S*s in the control group are contacted by *E*s who *do* expect the critical response. The analysis of the results, which can be accomplished in the simple case by a 2 x 2 analysis of variance, allows an assessment of the relative magnitude of the treatment effects, the expectancy effects, and the interaction between these effects.

This listing of potentially useful controls for the effects of *E* expectancy has been suggestive rather than exhaustive. Different experimental set-ups make some of these suggestions more appropriate than others. A number of the suggestions are best employed in combination with others. Above all, the list is offered tentatively. Perhaps there are areas of psychological research where *E* bias does not occur and in which none of these suggestions is then necessary. But whether there are in fact such immune areas of inquiry will remain unknown until we begin to employ at least some of these methods of minimizing and assessing the effect of the experimenter on the results of psychological research.

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The Role of Achievement Motive, Anxiety, Stimulus, and Expectancy, on Achievement Motivation in Arithmetic and Thematic Tests[1]

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Summary: Atkinson's theory of motivation to achieve in a risk-taking situation was studied for a sample of college men. The independent variables were achievement motive, anxiety, TAT stimulus-pull for achievement and probability of success in an arithmetic task. The criteria were performance on an arithmetic task and manifestation of n-Ach on the TAT. Results supported the use of the TAT but not the arithmetic task as a measure of achievement motivation, and are consistent with earlier studies. The failure of the arithmetic measure was interpreted as due to its confounding of motivation and ability. The importance of the TAT stimulus for subjects who are highly motivated was reflected in the particular sensitivity of cards highly structured for achivement to n-Ach.

The theory of motivation expounded by Atkinson (1957) has been extremely provocative, judging by the numerous experiments relating to his theory. The theory states that an individual's motivation in a given situation is a function of the product of the motives operating on a subject, his expectancy of goal attainment through making this response (subjective probability of success, P_s), and incentive $(1\text{-}P_s)$. The equation representing incentive follows the logic that the goal which is the least likely to be attained possesses the greatest attraction. Atkinson distinguishes between *motive* and *motivation* in that a motive is "a relatively enduring disposition of personality . . ." (Atkinson, 1958a, p. 597) whereas *motivation* refers to a " . . . *temporarily aroused state* produced when the cues of a situation elicit an expectancy of goal attainment which engages the motive . . ." (Atkinson, 1958a, p. 601). The approach gradient of motivation to achieve is represented by

Motivation to Achieve
$= M_s \times P_s \times I_s$

where

M_s = strength of motive to achieve
P_s = subjective probability of success
I_s = the incentive value for achievement $= 1 - P_s$.

An avoidance gradient such as "fear of failure," where measured, would be represented by the following equation:

Motivation to Avoid Failure
$= M_f \times P_f \times I_f$

where

M_f = motive to avoid failure
P_f = probability of failure
I_f = the incentive for avoiding failure $= - P_s$.

The resultant motivation equals the net sum of adding the two gradients. Atkinson has demonstrated that for both approach and avoidance-oriented persons, maximum effort will be produced when the probability of success is .5.

Earlier studies (Atkinson, 1958b; Murstein & Collier, 1962) have indicated support for the theory using arithmetic examples attempted as a criterion. On the other hand, recent studies using this criterion (Murstein, 1963a) failed to support the theory, but supported it via TAT achievement imagery (Murstein, 1963a; Easter & Murstein, 1964).

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[1] This research was supported by NIMH Grant M-4698.

The present study involved several refinements over the earlier work. First, more attention was to be paid to the personality structure of the participating *Ss*. They were to be assessed not only for achievement motive, but for the presence of test anxiety as well. Second, thematic cards used were not haphazardly chosen as in many earlier studies, but were to be chosen from a large pool of cards scaled for *n*-Ach. Third, insofar as possible, many of the usual procedural variables used by Atkinson were to be duplicated. This included the size of the reward, age, education of the *Ss* and the kind of arithmetic example employed. Last, in an attempt to make sure that the *Ss* were strongly motivated, they were to be interrupted in the middle of their arithmetic task, given the thematic task when achievement motivation was presumably maximally engaged, and then allowed to continue with the arithmetic task.[2]

The first three hypotheses tested stem from the theoretical model and were as follows:

1. Assuming that the approach gradient is a function of the achievement motive (Atkinson & Litwin, 1960), those individuals high on this motive should a) attempt more arithmetic examples and b) project more *n*-Ach on the thematic test than *Ss* low on the motive.

2. Assuming that the avoidance gradient is a function of test anxiety (Atkinson & Litwin, 1960), those individuals high on anxiety should a) attempt fewer arithmetic examples and b) project less *n*-Ach than *Ss* low on anxiety.

3. Persons whose probability of success in a task is .5 will have greater achievement motivation and should a) attempt more arithmetic examples and b) project more *n*-Ach than *Ss* with probabilities of success of .1 or .9.

The fourth hypothesis runs contrary to the Atkinson theory. The theory suggests that arithmetic performance and achievement imagery should be correlated at the point of highest achievement motivation, that is, .5 probability of success. McClelland (1961) confirms this view, showing his highest positive correlations between *n*-Ach and arithmetic performance for .5 groups of Japanese and Brazilian subjects, whereas his .75 groups all produced negative correlations, though these were low. Two later studies (Murstein & Collier, 1962; Murstein, 1963a), contrary to this view, *both* found significant positive correlations for the .9 group and no significant correlations for the .1 or .5 groups.

A possible explanation is that a situation in which the probability of success is very great affects achievement imagery and arithmetic performance in the following way. First, it imposes a "set" in manner of approach to both tasks which slightly reduces variability. This "set" is not necessarily one to strive for achievement, since the mean score of the .9 group in both studies was not high on either task relative to the other groups. Rather, the prospect of success strikes the group in different ways, some individuals presumably being highly motivated for both tasks, whereas others are not greatly motivated in their approach to both tasks. The important fact is that the high probability of success does have considerable impact with regard to both tasks.

Accordingly, hypothesis 4 was worded as follows:

4. Individuals with a .9 probability of success will manifest a positive correlation between their achievement imagery and their achievement

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[2] This innovation was suggested by John W. Atkinson to whom the authors should like to express their thanks. The responsibility for any conclusions drawn therefrom are, of course, our own.

motivation on an arithmetic task (that is, number of examples attempted), whereas the .1 and .5 groups will not manifest any significant correlations.

METHOD

Approach and Avoidance Measures of Subjects

From an initial pool of 296 men drawn from introductory psychology classes, it was desired to select four groups based on the extremes of two dimensions. The first dimension, Achievement Motive, was measured by giving the *Ss* an abridged version of the French Insight Test (1958). The test consisted of 5 short verbal descriptions of behavior that *Ss* were asked to analyze and write out. An example is, "Pete said, "I'm pretty sure I can do it." The stories were scored for *n*-Ach by the procedure described by McClelland, Atkinson, Clark and Lowell (1953) by an experienced judge whose reliability was established as .89 on earlier samples.

Subjects also took the Alpert-Haber Academic Anxiety Scales (1960). As originally utilized by these authors, 10 of the 19 statements reflect debilitating anxiety with regard to test situations, while the other 9 reflect "facilitating anxiety." The latter items reflect the lack of anxiety in taking exams and should perhaps be better referred to as freedom from anxiety. Because the two scales correlate anywhere from —.38 (Alpert & Haber, 1960) to —.65 (Dember, Nairne & Miller, 1962), it was decided to combine the scales into one scale of 19 items.

From the pool of 296 men, four groups of 15 each were selected on the basis of being either high or low on the Insight test (approach) and high or low on Test Anxiety (avoidance). The cutting scores, adjusted to secure this number, were high-Insight Test ≥ 8, low-Insight Test < 2; high-Test Anxiety > 62, low-Test Anxiety < 54.

Measures of Achievement Motivation

Whereas we used the French Insight test as an index of the achievement *motive*, we employed a picture thematic test to measure *motivation*. It might be asked since both tests are highly similar, whether they are not really measuring the same thing? The distinction between the two tests in our experiment, however, is not so much in their method of analysis as in the context in which they are given. A test administered in a relaxed situation, as was the French test, is most likely to tap the basic underlying motive, whereas a relatively similar test (our picture thematic test) given in an aroused condition is more adequately considered as a test of *motivation*.

The thematic test consisted of 6 cards scaled earlier for *n*-Ach on another population of college men (Murstein, 1965). The cards could be divided into subsets of two each of cards low, medium and high on *n*-Ach.

The arithmetic test, similar to the one employed by Atkinson (1958b) contained 14 pages of 24 problems each. The operations consisted of adding or subtracting three digits, keeping the solution in mind while adding or subtracting another set of three digits, and finally adding or subtracting the two solutions.

Experimental Instructions

The 60 subjects were seen in small groups or individually. Each subject had been randomly assigned to one of the probability groups, .1, .5, or .9. He received the directions for the arithmetic task and did the same problems. Then, the folowing instructions were given:

> You are one of a group of 20 persons of whom the..................percent (the percentage varied according to whether the *S* was in the .1, .5, or .9 group) turning in the highest number of correct answers to the problems will win \$1.25. In other words, your chances of winning the \$1.25 are.................. (the odds were 1 out of 10, 5 out of 10, or 9 out of 10, according to the group).

The *Ss* were allowed to work 8 minutes and then interrupted. The examiner then gave the usual McClelland instructions for writing TAT stories, including the projection of the cards for 20 seconds and the allotment of 4 minutes for the writing of the story. Six thematic cards were employed, four TAT cards and two from Atkinson's list (1958a pp. 832-834). These cards had been selected from 38 scaled for need achievement by the Likert method (Murstein, 1965). The cards were divided into three subsets of two cards each: high (pioneer chopping down tree — Atkinson No. 98, 17BM), medium (14, boy at desk with open book in front of him — Atkinson No. 8), and low (20, 13B). They were presented in a random order except that every three cards had to contain one card from each of the subsets. The order was: pioneer chopping down tree, 20, 14, 17BM, boy taking exam, and 13B.

After the thematic test, the *Ss* were allowed to resume the arithmetic task for another 8 minutes.

RESULTS

The arithmetic data were analyzed by a factorial design analysis of variance consisting of the following conditions: achievement motive (2), anxiety (2), probability conditions (3), making a total of 12 conditions with 5 subjects in each cell. The results are shown in Table I. They indicate that hypotheses 1a (differences in achievement motives), 2a (differences in anxiety) could be rejected, the differences in the groups being non-significant. Hypothesis 3a was tested by comparing the mean number of examples attempted in the .5 group against the mean of the pooled scores of the .1 and .9 groups. The *t* test again proved non-significant, thus resulting in the rejection of this hypothesis.

Hypotheses 1b, 2b, 3b were tested by a Type III analysis of variance of the thematic scores (Lindquist, 1953). The results are shown in Table II. Inspection of this table indicates that these hypotheses which tested the same variables as hypotheses 1a, 2a, 3a, were also not supported with the thematic test. Nevertheless, there were several significant findings ,some of which although not represented in the hypotheses, have some bearing on the Atkinson theory.

The highly significant Cards effect was not unexpected and merely supports the rationale for scaling. The significant Achievement Motive x Probability Conditions effect stemmed

TABLE I—Analysis of Variance of Number of Arithmetic Examples Attempted

Variable	df	Mean Sq.	F
Anxiety	1	2030.01	2.24
Achievement	1	104.01	.11
Conditions	2	392.01	.43
Anx. x Ach.	1	814.04	.90
Anx. x Cond.	2	.82	.00
Ach. x Cond.	2	1674.52	1.85
Anx. x Ach. x Cond.	2	672.70	.74
Error	48	904.18	

TABLE II—Type III Analyses of Variance of *n*-Ach

Variable	df	Mean Sq.	F
Between Subjects	59		
Anxiety	1	1.06	.07
Achievement	1	2.39	.15
Conditions	2	.62	.04
Anx. x Ach.	1	1.69	.11
Anx. x Cond.	2	2.82	.18
Ach. x Cond.	2	67.56	4.36*
Anx. x Ach. x Cond.	2	14.21	.92
Error (between)	48	15.48	
Within Subjects	120		
Cards	2	1221.95	32.14***
Cards x Anx.	2	28.72	.76
Cards x Ach.	2	11.56	.30
Cards x Cond.	4	20.47	.54
Cards x Anx. x Ach.	2	3.51	.09
Cards x Anx. x Cond.	4	19.07	.50
Cards x Ach. x Cond.	4	139.85	3.68**
Cards x Ach. x Anx. x Cond.	4	93.32	2.45
Error (within)	96	38.02	

* Significant at .05 level
** Significant at .01 level
*** Significant at .001 level

from the fact that persons with high achievement motives showed a considerable superiority over persons with low achievement motives in the .1 condition and a huge superiority in the .5 condition. On the other hand, for the .9 condition, high achievers manifested *extremely little* n-Ach compared to low achievers. While unpredicted, this finding is in substantial agreement with the theory, indicating that only in optimally challenging conditions does the higher achievement motive become engaged, whereas in very safe tasks where the probability of success is very high (.9), persons with high achievement motives are not motivated as compared to persons with low achievement motives.

The other significant interaction, Cards x Achievement Motive x Probability Condition, resulted from the fact that the high cards provided greater differentiation along the line reported in the Achievement Motive x Probability Condition than did the medium and low cards. In other words, for cards highly structured for *n*-Ach, the differences favoring the *Ss* with high achievement motives for the .5 and .1 conditions and favoring the *Ss* with low achievement motives for the .9 condition were higher than when either medium or low cards were considered. This finding is in accord with the theory suggested earlier (Murstein, 1963b) that *high* cards are most effective in situations of maximal arousal.

There were several factors which might have influenced the results and, therefore, needed to be tested. Was it not possible that the interruption of the arithmetic task while heightening the achievement motivation for the thematic test had weakened it for the second half of the arithmetic test via some kind off "drainage" process? Perhaps then, if the arithmetic scores prior to the interruption were analyzed alone, they might show the predicted differences which were masked when the overall scores were used? To test this possibility, separate analyses of variance were computed for the arithmetic first half scores and for the second half scores. In neither case did a single significant value result. The interruption, therefore, was not responsible for the failure of the hypotheses to be confirmed.

Hypothesis 4 was tested by correlating the n-Ach and arithmetic scores for each probability condition for the first half, second half and total scores. The results were: .1 condition first half .16, second half .30, total .24; .5 condition first half .10, second half .12, total .11; .9 condition first half .32, second half .03, total .34. The hypothesis that achievement fantasy and arithmetic scores would correlate significantly for the .9 condition but not for the .1 and .5 conditions is, thus, not supported although there is a trend in the predicted direction for the total score of the .9 group $p > .05 < .10$.

DISCUSSION

In discussing our results, we are mindful of the fact that anything can happen in *one* experiment. Our confidence in the conclusions we draw, therefore, stems from the fact that this is but the last of a series of studies in which those done with college students have been quite consistent. Our data, here, and in a previous study (Murstein, 1963a), indicate that Atkinson's theory does not hold if one uses arithmetic examples as an index of risk-taking behavior. Whether this finding is peculiar to arithmetic examples or represents a failure in the theory as a whole, can only be fully determined as future research is carried out with other criteria. Our other chief finding, however, may shed some further light on this question.

This is the third consecutive study (the first two were Murstein, 1963a, Easter & Murstein, 1964) in which the theory has been substantially verified when using thematic imagery as an index of motivation. It is true that the motive factor as represented by the Insight Test and the Academic Anxiety Scale, when considered singly, showed no differences in motivation. Further, the different probability conditions of themselves likewise did not confirm the theory. These results may have been due, perhaps, to the select nature of the population. An individual does not often reach the point of being a sophomore in college without some degree of achievement motive-strength or some ability to handle academic anxiety. No doubt also, the crudeness of the measures employed contributed randomly distributed error which masked group differences.

When, however, two of the components of the Atkinson equation were in accord with the theoretical expectation, that is, a strong motive to achieve was coupled with the condition that is maximally arousing for a strong motive (.5 probability of success), the Atkinson theory was supported via thematic imagery, though not by the arithmetic task. But, should not individuals with strong avoidance components (high Academic Anxiety Scale score) also have tried mightily to avoid failure when confronted with the .5 condition and thus manifested greater motivation than low anxiety persons? It is true that Atkinson so stated earlier (1957). Recently, however, he has suggested that the avoidance aspect of the theory is in need of overhauling[3] and, presumably, this aspect wil be worked out in future theorizing. The correlation between *n*-Ach and arithmetic task performance for the .9 group and not for the others did not quite reach the "golden" .05 level and would, perhaps, not be worthy of further comment were it not for the fact that earlier work (Murstein & Collier, 1962; Murstein, 1963a) found significant correlations for the .9 group and not for the .5 or .1 group. This is quite contrary to the McClelland and Atkinson view, as indicated earlier. The explanation is not easy and our explanation can only reiterate what Murstein (1963a) reported earlier. We believe this result is due to a "set" effect whereby individuals react differentially but consistently on both tasks. There is a certain amount of circularity in this explanation, but until we have advanced further in our understanding of the relationship between these tests and the construct of motivation, it seems pointless to speculate further.

Perhaps the chief question arising from our studies, is, Why should the theory work for motivation as measured by thematic stories, but not for actual effort as represented by an arithmetic task? We must be cautious because we do not know whether there is something peculiar to the arithmetic task which made it a poor criterion. Yet, it is possible to speculate that the difference in success in our criteria stems from the difference between fantasy and actuality. We recall the vogue some years ago of hypnotizing ball players on poor teams into thinking they were "world-beaters." Alas, the results were always the same, and negative: something along the order of "you can't make a silk purse out of a sow's ear." The limitations, skills, and temperament of the individual serve as checks to his motivation, to some degree. It is entirely possible that this aroused motivation may influence performance in other areas, but at present, those areas have not been uncovered. For the present, therefore, we would conclude that the theory will work best when applied to measures *reflecting the thought processes of motivation rather than its effects*. We may further conclude that thematic tests, when some attention is paid to their stimulus properties, provide a valid measure of achievement motivation.

Last, our higher order interaction effects involving cards demonstrate once again the importance of controlling the stimulus properties of thematic cards employed in research. In view of our findings in this regard and in an earlier study (Murstein, 1963a), it seems crucial to invest further time in learning the relationship which different degrees of stimulus structure bear to various states of motive strength and motivation.

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[3] Personal communication from Atkinson.

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Test Sophistication and Faking in the TAT Situation[1,2]

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Summary: This study investigated the effects of conscious altering of response (faking) and test sophistication on TAT performance. Thirty-six naive undergraduates and 36 TAT-sophisticated graduate students and clinicians wrote stories to all 20 TAT cards under one of two conditions: standard, and instructions to "fake" hostility. The four groups were then compared by Analysis of Variance on a number of quantitative response measures. Effects of the two experimental variables, sophistication and faking, varied with the response measure, but, in general, faking instructions led to response changes, and sophisticated subjects performed differently than naive ones. Some sex differences were also apparent. It was concluded that sophistication is a factor in *how* a subject fakes, the sophisticated subjects generally doing a better job of it. The implications for the effect of stimulus pull were discussed and it was concluded that the pull value of the stimulus is not affected by a peripheral response set but is affected by sophistication.

Subjective definition of the test situation has for some time been recognized as a variable in performance in "projective" assessment situations (Sarason, 1954). In order to provide structure and give meaning to relatively ambiguous stimuli, the subject must rely upon cues in the present situation as well as residuals from past experience. Not the least of these situational variables is that of subjective definition of the purpose of the test and conscious altering of test behavior in response to such definitions.

There exists a large body of evidence concerning the effect of experimentally induced sets to "fake" upon Rorschach performance (Abramson, 1951; Carp & Shavzin, 1950; Feldman & Graley, 1954; Fosberg, 1938, 1941, 1943; Hutt, Gibby, Milton & Pottharst, 1950). Few studies relevant to "faking" sets have been attempted with the TAT, however, perhaps due to the general lack of a systematic and established scoring system in its everyday use.

Leuba & Lucas (1945) hypnotically induced attitudes of happiness, criticalness and anxiety in their subjects, and found that the criticalness set influenced descriptions of magazine photographs. More relevant to the present study is one by Weisskopf & Dieppa (1951). Three TAT cards were administered to a group of neurotic males under three instructional sets: standard, faking the "best possible impression," and faking the "worst possible impression." Several differences were found between the three administrations on judges' ratings of a number of traits. The criticism may be raised that the same subjects received all three administrations; responses made to the standard administration very likely influencing later responses. Lubin (1958) found instructional sets toward free use of imagination, and "mastery of feelings," to be related to the extent of sexual, aggressive and creative expression as rated by judges.

Knowledge of the purpose of the test (i.e., test sophistication) may also be a factor in altering of test responses. Summerwell, Campbell & Sarason (1958) found that differential instructions concerning the purpose of the TAT affected ratings of the emotional tone and tone of the outcome. Similarly, Henry & Rotter (1956) found Rorschach responses to

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be altered by information as to the nature of the test.

The present study is concerned with the effects of conscious altering of test responses (faking) upon a number of TAT response measures. Furthermore, the interaction of test sophistication with faking of responses is investigated to determine the effect of psychological sophistication and prior knowledge of the TAT upon faking.

METHOD

Subjects

Seventy-two subjects were placed into one of four groups. Thirty-six undergraduate students in an introductory psychology course at the University of Iowa were randomly assigned to either group "E" or group "C", the "naive" groups. There were 12 males and six females in each group. The criteria for inclusion in the sophisticated groups (S) was a minimum of graduate standing in clinical psychology and previous enrollment in at least one graduate course in projective techniques. Thirty-six "sophisticated" subjects were placed in either group "ES" or "CS", the two groups being equated on the basis of professional experience. Each sophisticated group also contained 12 males and six females.

Procedure

All 20 TAT cards of the male (or female) series were administered to each subject, and the subject was asked to write his stories. Each group received the following written instructions:

Groups C, CS:

You are participating in a study designed to determine the typical stories told to pictures by college students.

You will be given a number of pictures. Your task is to make up as dramatic a story as you can for each. You are to tell *what led up to the event shown in the picture, describe what is happening at the moment, what the characters are feeling and thinking, and then give the outcome.*

Write your thoughts as they come to your mind; literary master-pieces are not required.

You are allowed a maximum of FIVE MINUTES on each card. If you are through with a card before the five minutes are up, wait for instructions to begin the next card. You will be warned when four minutes have elapsed so that you can wrap up your story. When the five minutes are up, you must turn to the next card.

Look at the cards one at a time, in the order furnished, and do not look at the next until instructed to do so. Turn each card face down when you are through with it.

Do not compare stories with your neighbors.

Groups E, ES:

You will be given a number of pictures. Your task is to make up as dramatic a story as you can for each. You are to tell *what led up to the event shown in the picture, describe what is happening at the moment, what the characters are feeling and thinking, and then give the outcome.*

Literary masterpieces are not required.

You are allowed a maximum FIVE MINUTES on each card. If you are through with a card before the five minutes are up, wait for instructions to begin the next card. You will be warned when four minutes have elapsed so that you can wrap up your story. When the five minutes are up, you must turn to the next card.

You are asked to take this test pretending that you are an AGGRESSIVE, VERY HOSTILE PERSON. *In other words, you will be writing the stories you believe an* AGGRESSIVE, VERY HOSTILE *person would write.* A *hostile* person is generally considered to be one who is *unfriendly, antagonistic, characterized by aggression, and encroaches upon others.* He will have *difficulty with control over aggressive urges.* A *hostile* person tends to *feel anger toward, and seeks to inflict harm upon, others,* and

TABLE I. Interrater Reliabilities

Measure	r	% Agreement
1. Emotional Tone	.89	
2. Outcome	.81	
3. Distortions		74
4. Unusual Formal Characteristics		88
5. Aggressive Themes		84
6. Frequency of Common Theme		78

may also attempt to *destroy or appropriate others' possessions.*

Look at the cards one at a time, in the order furnished, and do not look at the next until instructed to do so. Turn each card face down when you are through with it.

TABLE II. T A T Scores

Measure	Group Control Naive	 Sophisticated	 Experimental Naive	 Sophisticated
Mean Emotional Tone[a]	1.338	1.524	.705	.651
Mean Outcome[a]	1.866	2.033	.785	.905
Total Distortions[b]	21	18	30	9
Total U F C [b]	41	78	62	46
Total Aggressive Themes[b]	175	159	471	584
Mean Frequency (%) [a]	21.90	27.25	21.24	27.01

[a] Per Subject
[b] Per Group

Do not compare stories with your neighbors.

Analysis

Scores were obtained for the following measures: 1. Emotional tone rating (ET). 2. Outcome rating (O). 3. Perceptual distortions (D). 4. Unusual formal characteristics (UFC). 5. Number of aggressive themes. 6. Frequency in a normative sample of the most common theme in each story as determined by reference to an earlier normative study (Eron, 1950). Full descriptions of these measures may be found in Eron (1950, 1953) and Eron, Terry & Callahan, (1950). Protocols were randomized and all stories given in response to any one picture were scored at one time. The interscorer reliabilities, based on ten randomly selected protocols (200 stories) are reported in Table I.[4] These are of the same order as reliabilities obtained in previous studies by other authors using these scales (e.g., Bernstein, 1956; Liccione, 1955; Murray, 1959; Murstein, 1960; Sarason & Sarason, 1958; Summerwell, *et al.*, 1958; and Waxenberg, 1955). Data were analyzed by means of analysis of variance in a 2 x 2 factorial design (Lindquist, 1953).

RESULTS

For the most part, results are presented here with males and females combined. Combination seemed justified where males and females did not differ significantly within each group. Similarity between the sexes was true of all analyses except for UFC and frequency of common theme. Table II presents pertinent data; Tables III-VIII, the analyses of variance.

With respect to the first response measure, emotional tone (ET), Table III reveals a significant treatment effect; i.e., emotional tone under the faking conditions is lower than under standard conditions. In addition, there is a suggestion, although it falls short of significance at the .05 level of confidence, of an interaction between sophistication and faking under instruction. The sophisticated Ss presented stories with more positive emotional tone than naive Ss under standard conditions but their ET scores dropped further than did those of the naive Ss under faking instructions.

Outcome scores also were lower under experimental instructions for both naive and sophisticated Ss (Table IV). Although sophisticated Ss had slightly happier outcomes under both conditions, the latter tendency was not significant.

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[4] The authors wish to express their appreciation to Dr. Charles W. Day for his scoring of the protocols which furnished the basis for the interscorer reliability coefficients.

TABLE III. Analysis of Variance of Emotional Tone Scores

Source	df	Ms	F
Between Groups	3		
Sophistication (S)	1	.08	.96
Instructions (I)	1	10.21	123.01****
S X I	1	.27	3.25*
Within Groups	68	.083	
Total	71		

* P<.10
**** P<.001

Analysis of distortions (Table V) reveals both interaction and sophistication effects.[5] Sophisticated and naive subjects produced a comparable number of distortions under standard conditions, but the effect of experimental instructions was to reduce distortions in the sophisticated groups, and to increase distortions in naive subjects. The sophistication effect seems to be due almost entirely to responses under experimental conditions.

TABLE IV—Analysis of Variance of Outcome Scores

Source	df	Ms	F
Between Groups	3		
Sophistication (S)	1	.371	2.65
Instructions (I)	1	21.959	156.85****
S X I	1	.009	.064
Within Groups	68	.14	
Total	71		

**** P < .001

Interaction effects were also apparent with UFC as the response measure (Table VI), but these effects were due entirely to the male Ss. The sophisticated males exhibited more UFC's under standard conditions than did the naive males, and this relationship was reversed under faking conditions, the sophisticated males reducing UFC scores under the latter condition, while the naive males increased their scores. Sophisticated females produced more UFC's than did their naive counterparts. A sex difference appeared among the naive subjects, the females showing less UFC's under experimental instructions than under standard procedures, the males reversing this trend.

TABLE V—Analysis of Variance of Perceptual Distortions

Source	df	Ms	F
Between Groups	3		
Sophistication (S)	1	8.00	10.67***
Instructions (I)	1	.00	.00
S X I	1	4.50	6.00**
Within Groups	68	.75	
Total	71		

** p < .025
*** p < .005

TABLE VI—Analysis of Variance of U F C

Source	df	Ms	F
Females			
Between Groups	3		
Sophistication (S)	1	18.38	4.47*
Instructions (I)	1	9.38	2.28
S X I	1	.04	.01
Within Groups	20	4.11	
Total	23		
Males			
Between Groups	3		
Sophistication (S)	1	.00	.00
Instructions (I)	1	.33	.06
S X I	1	56.33	9.39***
Within Groups	44	6.00	
Total	47		

* p < .05
*** p < .005

Table VII indicates that total number of aggressive themes increased when subjects were asked to fake hostility. Sophisticated subjects tended to increase their output more than did naive students, but this tendency does not approach statistical significance.

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[5] Although the number of perceptual distortions, unusual formal characteristics and themes are frequency data, the distributions were such that every S could be assigned a score representing the total number of instances of each of these variables. Thus the data could be considered continuous and analysis of variance appropriately employed.

TABLE VII—Analysis of Variance of Total Aggressive Themes

Source	df	Ms	F
Between Groups	3		
Sophistication (S)	1	7220.02	73.32****
Instructions (I)	1	130.69	1.33
S X I	1	231.11	2.35
Within Groups	68	98.47	
Total	71		

**** p < .001

Instructions to fake hostility had no effect upon Ss' inclusion of popular themes in their stories, but sophistication did, the male sophisticates using more common themes than their unsophisticated counterparts (Table VIII). There were no such differences among the females.

TABLE VIII—Analysis of Variance of Mean Frequency of Common Themes

Source	df	Ms	F
Females			
Between Groups	3		
Sophistication (S)	1	.05	.005
Instructions (I)	1	.00	.00
S X I	1	9.54	1.04
Within Groups	20	9.168	
Total	23		
Males			
Between Groups	3		
Sophistication (S)	1	821.71	55.9 ****
Instructions (I)	1	6.00	.41
S X I	1	.81	.06
Within Groups	44	14.70	
Total	47		

**** P < .001

DISCUSSION

In general, it would appear that a conscious set to fake affects scores on several TAT response measures, a fact consistent with findings with the Rorschach.

Research with the Rorschach has indicated that personality variables, most notably personal adjustment, are determinants of how the person will alter his responses (Fosberg, 1943; Carp & Shavzin, 1950; Hutt, *et al.*, 1950; Feldman & Graley, 1954). Similarly, personality factors have been found to affect conscious alteration of responses in a thematic technique (Van Lennep & Houwink, 1953). The present study has demonstrated that both test sophistication, and sex, are also variables affecting the direction and intensity of shifts in some thematic response measures under faking conditions.

In a sense, sophisticated subjects faked more effectively, in that they had less UFC's and perceptual distortions when faking than did undergraduates. While attempting to fake, naive subjects did more violence both to the stimulus demands of the cards and the story telling demands of the situation. It would be interesting to compare how accurately the two groups approximate the responses of a known clinically hostile group.

Aside from sex differences noted in attempting to fake, females in general exhibited verbal styles differing from those of males, as reflected in UFC scores. Also sophisticated males relied more on their experience with the TAT by producing the more common themes, than did the opposite sex.

Under standard conditions, the emotional tone and outcome scores of the naive groups were comparable to those of normative samples (Eron, 1950; 1953). Sophisticated subjects, however, tended to tell happier stories with happier outcomes. Whether this is due to adjustment or experience factors remains to be seen.

One last point may be made in reference to stimulus "pull." Eron (1948), Murstein (1963), and Zubin, Eron, & Schumer (1965) have stressed the importance of the stimulus cue value of a picture as a determinant of thematic material. This position has been supported in the present study. Inducing a peripheral set to fake did not eliminate the presence of the more common themes associated with a specific card. This finding is consistent with Summerwell, Campbell & Sarason (1958), using emotional tone and outcome as response measures under varying sets of instructions.

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The Performance of Juvenile Delinquents on the Holtzman Inkblot Technique: A Normative Study

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Summary: A normative study of the Holtzman Inkblot Technique (H.I.T.) protocols of 75 male juvenile delinquents detained while awaiting Court hearings was undertaken as follows:

1) All the protocols were scored by an examiner who was trained in the Klopfer method but who had had no specific training in the scoring of the H.I.T. beyond that afforded by a careful study of the H.I.T. *Manual*. They were later re-scored by the criterion scorer for the H.I.T. Research Group and the two sets of scores intercorrelated. Highly satisfactory inter-scorer reliability was found for all but two variables.

2) The delinquent's scores were compared with those reported by Holtzman, Thorpe, Swartz, & Herron (1961) for non-delinquent adolescent samples. Significant differences were found for 23 of the 40 comparisons made with the delinquents generally having lower scores than would be expected for boys their age. It was concluded that the norms for non-delinquent adolescents are inappropriate for individual discriminations among delinquents in such a setting and new percentile norms for use in such settings were presented. The possible causes for the observed differences including developmental immaturity, underachievement and guardedness were discussed.

3) The delinquents' scores were factor analyzed and rotated by the normalized varimax and graphic hand techniques in an effort to achieve a matching with the factorial structure found by Holtzman *et al.* (1961) in other samples. More factors were extracted than usually found by Holtzman, probably because of differences in the criterion used by halting factor extraction. The overall factorial structure was found to be in excellent agreement with that found by Holtzman for other samples.

The Holtzman Inkblot Technique (H.I.T.) is the result of an attempt to bring psychometric rigor to the clinical and experimental use of inkblots in assessment. (Holtzman, Thorpe, Swartz, Herron, 1961). By using 45 cards with one response allowed for each, providing a standardized inquiry and administration, and by developing numerical, rating-scale scores for each of 22 variables, the authors of this technique have made great steps toward achieving this goal.

In the course of developing the H.I.T., Holtzman *et al.*, (1961) obtained normative data on a number of different samples. They have published percentile norms for eight of these samples: college students, average adults, 7th graders, elementary school children, chronic schizophrenics, mentally retarded and depressed patients, (Holtzman *et al.*, 1961). Factor analyses of the 22 H.I.T. variables have been carried out for each of these samples.

The purpose of the present study is to extend the standardization of the

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[3] The data to be reported in this study were collected while the investigator was at the University of California, Berkeley and on the staff of the Alameda County (California) Probation Department Guidance Clinic. The author is grateful to those members of the Clinic staff who administered and transcribed the Holtzman Inkblot Tests.

H.I.T. to a new clinical group, male juvenile delinquents. Specifically, three questions are posed:

1) Is it possible for a clinician well trained in the Rorschach technique to score the H.I.T. reliably with no specific training beyond that offered by a thorough study of the *Manual?*

2) Do the scores obtained by juvenile delinquents differ significantly from those obtained by Holtzman *et al.* (1961) for non-delinquent adolescents?

3) Is the factorial structure of the H.I.T. scores of a delinquent sample similar to that obtained by Holtzman *et al.* (1961) in other samples?

Subjects and Procedures

As part of a larger study on the dynamics of assault (Megargee, 1964a; 1964b) the Holtzman Inkblot Technique was administered to 75 male juvenile delinquents who were being detained at the Alameda County (California) Juvenile Hall while awaiting Court hearings. All the H.I.T.s were administered during the first ten days of detention as part of a standardized test battery. A structured interview and the TAT preceded the H.I.T. administration and all three were usually administered in the same sitting. All three instruments were tape recorded and verbatim typescripts were later prepared.

The five examiners who administered the tests were all professional clinical psychologists of the Probation Department Guidance Clinic staff; four had M.A. degrees and one the Ph.D. Their professional experience ranged from the newest member of the staff (who had had a year's internship at the Clinic prior to his staff appointment) to a maximum of fifteen years postdoctoral experience. This study represented the first experience these examiners had with the H.I.T. although all were familiar with the Rorschach. Specific training in the H.I.T. consisted of a thorough reading of the H.I.T. *Manual* (Holtzman, 1961) and administration of one or two H.I.T.s for practice.

The subjects included 30 boys detained for assaultive crimes ranging from battery to homicide, 20 boys detained for incorrigibility and 26 boys detained for property offenses such as auto theft or burglary. They ranged in age from 11-1 to 17-9 with a mean of 15-5; their IQ's (as estimated from the Information and Picture Completion subtests of the WISC and WAIS) ranged from 64 to 147 with a mean of 96. Thirty of the boys were white and the rest were Negro. For 28 of the boys, this was their first detention; the rest were recidivists of whom 28 were State Youth Authority parolees.

This selection of subjects was based on the needs of the study on assaultiveness for which these data were collected. The 30 boys who had committed assaultive offenses represented all the seriously assaultive offenders booked into Juvenile Hall between July 1, 1962 and May 1, 1963. Members of the other two groups were matched to the assaultive group on such variables as race, recidivism, unit assignment and so forth.

As was the case with all assessment referrals to the Probation Department Clinic, the boys were aware of the fact that the results of the testing would influence the Court's disposition of their case. Undoubtedly this created more guardedness than would have been the case if these same subjects had been tested in some other setting. However, one goal was to make the situation representative of the typical clinical examination of a juvenile delinquent in a custodial setting so that the normative data would have practical utility.

The protocols were scored from the typescripts by the author who, although well trained in the Klopfer method of Rorschach scoring, had had no training in the Holtzman technique aside from a thorough study of the *Manual* and the examples contained therein. They were later rescored by Miss Carol Hampton, criterion scorer for the Holtzman Inkblot Research Group at The University of Texas.

Correlations were made between the author's total scores and Miss Hampton's criterion scoring for all variables. These provided an estimate of the interscorer reliability obtainable with the H.I.T.[4] Means and standard deviations were calculated for the 22 H.I.T. scoring categories and compared by means of t tests with the two most appropriate normal reference groups reported by Holtzmen *et al.* (1961), Texas 7th graders and Chicago 11th graders.

In order to compare the factorial structure of the delinquent's H.I.T. scores with those obtained in other samples, the 22 H.I.T. variables were inter-correlated then factored into principle components and the resulting factors rotated by the normalized varimax procedure as developed for the CDC 1604 (Veldman, 1963) with unities left in the diagonals and factor extraction halting when eigenvalues dropped below unity. This procedure differed in the stop criterion used from that employed by Holtzman *et al.* (1961).

RESULTS

Interscorer Reliability

The correlations between the investigator's scoring and that of the criterion scorer for the Holtzman group ranged from .73 to 1.00, with a median of .96, demonstrating a clinician well grounded in the Rorschach can learn to score most H.I.T. variables satisfactorily with no specific training other than that afforded by a thorough study of the *Manual*.

Unsatisfactory reliability coefficients (.77 to .73) were obtained for Space (S) and Pathognomic Verbalization (V). In the case of the former, the investigator showed a consistent tendency to score this variable too liberally. On the other hand, the investigator tended to either score Pathognomic Verbalization too conservatively or to overlook responses on which it might be scored. This was probably a result of the complexity of the V scale, which has nine subscales of which more than one might be scored. Clinicians who would score the H.I.T. would probably be well advised to get some specific training beyond that afforded in the *Manual* in order to score V reliably.

Comparison of Delinquent and Non-delinquent Adolescents

The mean scores and standard deviations of the 75 delinquents on the 22 H.I.T. variables are presented in Table I, along with the scores reported by Holtzman *et al.* (1961) for non-delinquent 7th and 11th graders.

As noted above, the delinquent sample ranged in age from 11-1 to 17-9 with a mean of 15-5. Their ages therefore overlapped the 7th and 11th grade samples which ranged in age from 12 to 14 and from 16.5 to 17.5 respectively. It might be expected, then, that if the scores were solely a function of age, the delinquent group would obtain scores falling midway between the other two and that the standard deviations of the delinquent sample would be higher. The general pattern that emerged, however, was for the delinquent sample to obtain scores significantly lower than the 11th graders, and either identical to or lower than the 7th graders. The only exceptions to this were the Rejection and Anatomy scores on which the delinquents were significantly higher than the 11th graders, and slightly higher than the 7th grade sample.

Overall, there were significant differences at the .01 level for 23 of the 40 comparisons tested. These data indicate that the norms for non-delinquent adolescents are not appropriate for individual discriminations within

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[4] In order to ensure that the comparisons with normal adolescents were not the result of scoring biases or errors, Miss Hampton's criterion scores were used for all subsequent analyses.

TABLE I—H.I.T. Scores for Delinquents Contrasted with Two Non-Delinquent Groups

Variables		Juvenile Delinquents N=75[a]		7th Grade sample N=197[a]			11th Grade sample N=72[a]		
		$\bar{x}$	s	$\bar{x}$	s	*t*	$\bar{x}$	s	*t*
RT	Reaction Time	17.5	10.9	22.3	10.2	3.31*	18.7	18.4	.88
R	Rejection	9.8	11.0	8.9	9.1	.63	1.8	3.0	6.06*
L	Location	20.7	10.9	27.9	17.7	4.04	40.7	15.2	9.13*
S	Space	0.3	0.6	1.1	1.1	7.62*	0.8	1.0	3.65*
FD	Form Definiteness	73.8	17.1	83.9	19.8	4.16*	82.3	16.8	3.04*
FA	Form Appropriateness	40.6	6.2	45.7	6.0	6.12*	43.1	4.8	2.74*
C	Color	12.6	11.9	15.1	10.6	1.59	20.8	9.1	4.71*
Sh	Shading	7.5	4.9	7.1	6.1	.56	12.2	6.1	5.14
M	Movement	22.1	14.3	24.4	16.7	1.13	30.7	14.2	3.66*
V	Pathognomic Verbalization	2.5	2.9	2.4	4.3	.22	6.3	8.3	3.69*
I	Integration	3.2	2.5	3.5	3.4	.80	5.3	4.1	3.74*
H	Human	12.4	7.5	13.5	7.6	1.08	22.3	9.5	7.02*
A	Animal	19.1	9.5	19.2	9.3	.08	24.8	8.1	3.93*
At	Anatomy	3.2	3.4	2.4	2.7	1.83	1.8	2.1	3.01*
Sx	Sex	0.2	0.8	—	—	—[b]	—	—	—[b]
Ab	Abstract	0.1	0.5	—	—	—[b]	—	—	—[b]
Ax	Anxiety	7.3	5.1	9.1	6.2	2.45*	8.3	5.5	1.14
Hs	Hostility	8.2	5.6	8.8	5.6	.79	8.9	5.1	.79
Br	Barrier	4.2	3.3	6.1	3.7	4.10*	5.9	2.8	3.40*
Pn	Penetration	3.0	3.0	3.6	2.9	1.50	2.8	2.1	.47
B	Balance	0.2	0.5	0.3	0.7	1.43	0.3	0.6	1.11
P	Popular	5.9	3.1	7.8	2.8	4.63*	9.1	2.8	6.57*

[a] Data reported by Holtzman *et al.* (1961).
[b] These scores were so infrequent that they were not reported by Holtzman *et al.* (1961).
*Significant at the .01 level.

a confined delinquent group. Accordingly, percentile norms for use with male juvenile delinquents in custodial settings were computed and are presented in Table II.

Factor Analysis

Eight factors were extracted and rotated by the normalized varimax method. Additional graphic hand rotations were performed aimed at matching the factorial structure usually obtained by Holtzman *et al.* (1961) and the factors were numbered to correspond to the factors defined by those investigators. The rotated factor loadings are available at request.

Factor I had its principal loadings on Movement, (M), Integration (I), Popular (P), Barrier (Br), Human (H), Anxiety (Ax), and Hostility (Hs). This factor accounted for 23% of the variance and was an excellent match for Holtzman *et al.'s* (1961) Factor I which was defined by invariably high loadings on M, I, H, Br, and P. Holtzman *et al.* (1961) also found substantial loadings for Ax and Hs on Factor I in many samples.

Factor II also proved to be a good match for Holtzman *et al.'s* second Factor which was defined by high loadings on Shading (Sh), Color (C) and Form Definiteness (FD) (reversed). In the present analysis a similar pattern of loadings was obtained with a high positive loading on FD, a high negative loading on C and a moderately high negative loading on H.

Holtzman *et al.* (1961) found Factor III to be defined chiefly by Pathognomic Verbalization (V), along with Anxiety (Ax), Hostility (Hs) and, in some samples, Movement (M). V was the primary variable loading on Factor III in the present analysis and Hs and Ax had moderately high loadings. An unexpected result was the extraordinarily high loading (.71) of Bal-

TABLE II—Percentile Norms for 75 Male Juvenile Delinquents Tested While in Custody

Raw	*Variables*																					
Score	RT	R	L	S	FD	FA	C	Sh	M	V	I	H	A	At	Sx	Ab	Ax	Hs	Br	Pn	B	P
105																						
104					99																	
103					98																	
102					98																	
101					94																	
100					94																	
99					92																	
98					92																	
97					89																	
96					89																	
95					89																	
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86					75																	
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71					44																	
70					43																	
69					41																	
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58					21																	
57					20																	
56					20																	
55					15																	
54					15				99													
53					13	99			97													
52			99		9	98			96													
51			98		7	98			96													
50			96		7	98			95													
49			96		7	96			95													
48			96		5	96			93													
47			96		5	88			92													
46			96		5	85			89													
45			96		5	81			89													
44			96		4	72			89													
43			96		4	65			88													
42			96		4	60			87													
41	99		94		3	53			87				99									
40	98		94		3	44			87				98									
39	98		92		3	35			87				98									
38	95		92		3	27			85				98									
37	94		92		3	25			85				96									
36	94		92		3	24			83				96									

TABLE II—*Continued*

Raw Score	RT	R	L	S	FD	FA	C	Sh	M	V	I	H	A	At	Sx	Ab	Ax	Hs	Br	Pn	B	P
	Variables																					
35	94	99	92		3	19			81				95									
34	94	98	91		1	16			80				94									
33	94	96	89		0	9			80				94									
32	94	96	88			9			77				94									
31	94	94	87			9			77				91									
30	94	94	84			7	99		75			99	91									
29	94	91	83			3	98		75			98	87									
28	91	88	80			3	98		75			96	85									
27	84	88	80			3	98		73			96	77									
26	81	87	80			3	95		72			96	77									
25	80	87	77			3	94		71			94	73									
24	80	85	75			1	91		67			92	69									
23	80	84	71			1	89		63			91	65									
22	77	80	69			1	88		57			91	63									
21	73	80	65			1	87		56			91	57					99				
20	72	77	57			1	81		53			88	56				99	98				
19	68	77	51			1	80		43			85	56				98	98				
18	64	77	48			1	77	99	41			81	55				96	98				
17	60	77	43			1	76	96	40			77	53				96	92				
16	57	77	40			0	72	95	36			76	47				95	91				
15	53	75	35				72	92	35			72	35				92	88				
14	44	72	29				67	91	33			65	29	99			89	85				
13	41	69	27				64	88	29			61	25	98			85	80		99		
12	39	69	21				57	77	28			53	25	98			84	77		98		99
11	36	65	19				53	77	25		99	51	23	98			81	77	99	98		98
10	31	64	13				47	77	23		98	47	23	96			77	69	95	98		95
9	24	63	11				40	72	21	99	98	44	21	96			71	61	91	95		87
8	19	61	5				35	64	20	95	98	36	15	95			64	55	87	94		81
7	5	56	5				32	57	19	92	96	29	9	92			55	45	81	94		65
6	5	55	4				25	45	13	88	92	19	8	87			49	41	77	92		57
5	1	53	4				24	37	12	77	84	15	8	83			39	35	71	83		44
4	0	43	3				21	29	11	72	76	11	5	73			36	31	60	73		36
3		39	0				19	20	5	68	60	7	4	64			25	28	44	69		28
2		39		99			15	15	3	60	43	4	1	49	99	99	19	16	39	56	99	17
1		36		95			12	11	3	47	31	4	0	36	96	98	13	9	23	35	98	9
0		28		77			9	9	1	45	12	4		21	91	96	7	5	13	17	85	0

ance (B) on this factor. In Holtzman *et al.'s* samples, B never loaded higher than .26 on Factor III. The present result is probably due to the extreme truncation of the rare B score with 85% of the subjects having scores of 0 which rendered it quite unstable in a correlational analysis (see Table II).

Factor IV was not well defined in Holtzman's analyses but was characterized primarily by high Form Appropriateness (FA) and Location (L) loadings. In the present study, moderately high loadings were obtained for both these marker variables. Anatomy (At) also had a substantial negative loading (−.57) on this factor in the present analysis. A similar pattern was obtained in several samples by Holtzman *et al.* (1961) who found reversed loadings for At ranging as high as —.73 on Factor IV.

Holtzman *et al.* (1961) found Factor V to be defined primarily by Reaction Time (RT), Rejection (R), and Animal (A) (reversed). This same basic pattern was noted in the Factor V loadings in the present sample. Sex also loaded .56 on this factor; this is similar to the loading of .53 obtained by Holtzman *et al.* (1961) in a sample of retarded adults.

Holtzman *et al.* (1961) did not always find a Factor VI. Therefore they interpreted it as a residual factor with high loadings on those variables which had not been marker variables for any of the first five factors, namely Space (S), Anatomy (At), Sex (Sx), Abstract (Ab), Penetration (Pn) and Balance (B). Of these Pn, At, and Sx were found most frequently, although the patterns shifted markedly from sample to sample.

In the present analysis, not one but three essentially residual factors were extracted. This was probably a result of the use of a different criterion for the stopping of factor extraction.

The first of these three residual

factors, Factor VI, had its highest loading on Space (S) along with a moderate loading on Abstract (Ab). Factor VII had its highest loading on Abstract (Ab): no other loadings exceeded .45. Factor VIII was a general residual factor with no loadings over .45. Inspection of these factors shows that the highest loadings came primarily from variables which are infrequently scored and hence unstable because of extreme truncation. (See Tables I and II.

All in all, the pattern of loadings which emerged after the graphic hand rotations showed that the Holtzman factors could be matched quite adequately. The factorial structure of H.I.T. scores in this sample does not appear to be different from that found in the other populations which have been sampled to date.

Discussion

It is not surprising that the H.I.T. scores of juvenile delinquents should be markedly different from those of normal adolescents. Indeed, if there had not been differences the results would have cast doubt on the diagnostic utility of the H.I.T. The fact that the factorial pattern underlying these differences was quite similar to that found in other samples indicates that the variables scored in the Holtzman system relate to each other in a reliable fashion in widely differing populations and settings. This shows they are potentially quite meaningful dimensions or constructs for the assessment of personality.

There are several possible explanations for the pattern of scores obtained by the delinquent group. It could be argued that the scores reflect the immaturity of juvenile delinquents since the pattern of scores was similar to the younger 7th grade sample. This impression is strengthened when the delinquent's scores are compared with the developmental H.I.T. data reported by Thorpe (1961) who studied the changes in H.I.T. scoring patterns in five samples aged 4-6, 8-10, 12-14, 16-18 and 18-22. The low mean scores for the delinquents on such variables as Form Appropriateness, Form Definiteness, Integration, Movement, Human and Pathognomic Verbalization, are similar to the mean scores for groups considerably younger than the delinquent sample. This can not be considered an artifact of the high Rejection rate of the delinquents which, in the Holtzman system, results in diminished scores on many of these variables, for Thorpe's data were prorated to allow for Rejection and the pattern of lower scores is maintained even when the delinquents' scores are similarly treated. The fact that the overt behavior which led to the delinquents' confinement was also immature makes the hypothesis of generalized immaturity reflected in inkblot scores an attractive one.

There are indications, however, that this explanation may be overly simple. Thorpe's (1961) data also showed that the corrected mean Location scores of younger samples are moderately high, ranging from 31-42, indicating use of small and large details as well as wholes. The mean score of college students (age group 18-22) however, was markedly lower (24) indicating a greater use of whole responses.[5] This sudden decrease in the Location score, accompanied by a marked increase in Integration (I), and Movement (M), as well as no change in Form Appropriateness (FA) or Form Definiteness (FD) reflected an attempt on the part of the older college students to create a superior response which integrated the entire blot into a meaningful percept with no loss in accuracy.

The corrected mean Location score of the delinquents in the present sample was similar to that obtained by Thorpe's (1961) college students (27), and was markedly lower than the scores obtained by the younger samples. However, as noted above, the delinquents corrected scores on I, M, FA, and FD were also low. It appears that the delinquents produced whole responses without making the additional effort necessary to reconcile these responses with the stimulus characteristics of the blot. This use of large blot areas with little concern for accuracy appears to reflect a pattern of underachievement and carelessness on the part of the delinquents which was not found in Thorpe's (1961) samples.

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[5] In the Holtzman scoring system a small detail is scored "2", a large detail "1", and a whole response "0". The Location score is the sum of the individual response scores for the 45 blots.

Ainsworth and Klopfer have suggested that the use of many whole responses in conjunction with few human movement responses and low form level on the Rorschach may reflect " . . . a general interference with the use of intellectual capacity (or low capacity itself) so that efforts to gain an integrated view of the world will be ineffective and there will be disappointment in the gap between aspiration and the ability to achieve" (Klopfer, B., Ainsworth, Klopfer, W. G., & Holt, 1954, p. 304). This is consistent with the pattern of academic underachievement usually noted in delinquent boys, and with Cohen's (1955) interpretation of delinquent vandalism and aggression as stemming from the inability of lower class boys to achieve their aspirations in school settings which reward only middle class values and behavior. Another factor which could have contributed to the observed pattern is guardedness on the part of the subjects. The delinquent boys were seeing the "headshrinker" quite involuntarily and they were well aware of the fact that the psychological examination would influence the adjudication of their cases. The resulting guardedness could have led to minimal and tersely worded responses on the unfamiliar and probably threatening inkblot examination. Since research currently in progress indicates a marked association between certain H.I.T. variables and the number of words in a response, it is conceivable that the nature of the setting may have reduced some of the scores by reducing the response length. This notion could be evaluated best by testing delinquents both in and out of a custodial setting. Until such a study is undertaken, however, it would be advisable to use the percentile norms in Table II only in situations closely approximating the setting in which they were obtained.

The data also serve to once again point up the oft-observed fact that there are few simple direct relations between overt and fantasy behavior. Since the delinquent sample was undoubtedly more impulsive, more hostile and (at the time of testing) more anxious than those samples tested by Holtzmen *et al.* (1961) it might have been expected that they would have had higher Color, Hostility and Anxiety scores. However, this was not the case. Rosenzweig (1950) has differentiated three levels at which a person may respond to a projective test, the Subjective, the Objective and the Projective. It is likely that the delinquents were responding at the first of these, the Subjective. At this level, according to Rosenzweig, the individual responds in terms of what he feels is expected in the situation and it is unlikely that simple relations between overt and fantasy behavior will be obtained.

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The Research Use of Projective Techniques: A Seventeen Year Survey[1]

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Summary: The past 17 volumes (from 1947 to 1964) of the *Journal of Projective Techniques and Personality Assessment* were surveyed with regard to the degree of research usage of the various projective techniques. The most commonly used techniques in research have remained quite unchanged over the past 17 years, i.e., the Rorschach, the thematic tests, human figure drawings, and sentence completions. An analysis and comparison of the first five years covered by the survey with the last five years suggests that the Szondi, the Mosaic, Finger Painting Analysis, and the Make-A-Picture show relative decline in research usage; the Blacky, the Holtzman Inkblots, and the Hand Test appear to be increasing. The correlation between the degree of clinical usage reported by Sundberg (1961) and the degree of research usage found in this study was .60, suggesting a high relationship between the two measures. However, it was suggested that an increase or decline in the research usage of an instrument may precede a corresponding increase or decline in its clinical usage.

The clinical application of psychological tests including the projective techniques has recently been explored in detail (Sundberg, 1961) though the research application of these same instruments remains somewhat obscure. The working clinician is deluged with clinical research which utilizes the various projective techniques, but, apart probably from the Rorschach (about which Sundberg, 1954, reflected that there were three publications weekly in English), the clinician may never be able to partial out except by gross impression what instruments are being given the most current research usage, which are increasing in usage, which ones are being used less often, etc. This study, a survey of published projective technique research, is an attempt to bring some relief to the ganzfield of the current situation. It limits itself to the *Journal of Projective Techniques and Personality Assessment* (and its forebearers, the *Journal of Projective Techniques* and the *Rorschach Research Exchange*) as it was felt that these sources would be most likely to yield consistent, reliable information and be the least likely to reflect research fads.

METHOD

An intensive survey was made of all volumes of the *Journal of Projective Techniques and Personality Assessment* from 1947 to 1964 (Volumes 11 through 28 inclusively). The initial ten volumes of the journal were not included in the survey because they concerned themselves almost exclusively with the Rorschach. Each published article surveyed was cataloged as to which projective technique or techniques it was concerned with or used as a research tool. Multiple listings were given when a test battery consisting of two or more tests was reported. In the interest of parsimony and clarity, all thematic tests were subsumed under the TAT, and all sentence completions were listed generically, as were all human figure drawings (with the exception of those included in the House-Tree-Person, and the Goodenough).

RESULTS AND DISCUSSION

While rankings were made for each volume surveyed, it was felt that trends in usage might be seen more clearly over five-year groupings. Accordingly, composite rankings for the first five years of the survey and the

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last five years were computed and are reported in Table I along with the total rankings over all 17 volumes.

Table I — Rankings of Projective Techniques in Terms of Frequency of Occurrence in the Journal of Projective Techniques[a]

Projective Technique	Total 1947-1964	1st 5 years 1947-1951	last 5 years 1960-1964
Rorschach	1	1	1
TAT	2	2	2
Human Figure Drawings	3	3	3
Bender-Gestalt	4.5	12	4
Sentence Completion	4.5	4	5
Blacky	6	16.5	6
Szondi	7	6.5	13
Make-A-Picture	8	5	13
Mosaic	10	12	19
Picture Frustration	9 10	12	7.5
House-Tree-Person	11	16.5	11
Word Association	12	8	9.5
Handwriting Analysis	14	12	16
Finger Painting	14	6.5	19
Holtzman Inkblot	14	b	9.5
Behn Inkblot	17	12	19
Four Picture Test	17	12	13
Hand Test	17	b	9.5
Insight Test	19	b	16
Picture-Arrangement-Test	20.5	b	16
Despert Fables	20.5	12	b

a—does not include techniques which were only reported in 1 article.

b—did not appear/was not published.

As is quite evident from Table I, in general the more commonly used projective techniques have changed but little in the past 18 years. The Rorschach continues to be the most commonly used, followed by the thematic tests and the figure drawing tests. The research use of the sentence completion instruments has also held up well over the years. However, several projective techniques have greatly declined in their frequency of reported research usage in this journal, i.e., the Szondi, the Make-A-Picture, Finger Painting Analysis, and the Mosaic. That this relative decline in reported research may not be completely reflected for all these tests in actual clinical usage, however, is attested to by Sundberg (1961, p. 80) who reports that the Make-A-Picture and the Szondi are the seventh and ninth ranking projective tests in terms of reported clinical usage in 1959. Tests which appear to be increasing in research usage are the Blacky, the Hand Test, and the Holtzman Inkblots. The latter two tests, because of their recency, do not appear in Sundberg's data; the Blacky there is reported as being the tenth most used projective.

How well do these rankings of research usage correspond with the actual usage of the tests? Sundberg in 1961 found that the correlation between reported use of all tests and research on those tests was .46. That this seems to hold up for projectives alone is reflected by rank-order correlations between the frequency of research usage of projectives as found in this survey and the frequency of clinical usage as reported by Sundberg. For the 11 most frequently researched tests, the correlation between the 17 year research usage and reported clinical usage is .56; the corresponding correlation for the past five years is .60 (both correlations differ significantly from zero at less than the .05 level). So, in major part, the tests which are used clinically are those about which or with which research is done. One might speculate that habit, clinical experience, or personal investment might cause a test to be utilized after research regarding it has ceased to appear (in the present instance, this is what may be happening to the Szondi and the Make-A-Picture). It would seem reasonable that a decline in research rate might portend a later decline in clinical usage. Similarly, new projective techniques may appear first in the literature and be research material before they have any general acceptance as clinically useful instruments. This is what appears to have happened to the Blacky (and possibly to the Bender-Gestalt used as a projective) and may be what is beginning to happen to the Hand Test and to the Holtzman. Again, research usage may anticipate later clinical usage.

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Adjustment for the Total Number of Responses in Calculating the Rorschach Apperception Type[1]

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Summary: In order to adjust for total responses (*R*) on the Rorschach, apperception (location) scores are expressed as percentages of *R*. An alternative procedure is recommended in which adjustments are the differences between obtained scores and those predicted from the regression of the scores on *R*. Standardization *Ss* were 200 male and female normals, ages 20 to 40. Percentages of these *Ss* falling within certain ranges of adjusted scores are given. Caution is recommended in making inferences about apperception types obtained by extrapolating beyond the range of *R* in the standardization group. Preliminary results obtained by applying these adjustments to disturbed adult and children's groups suggest that the distributions of adjusted scores tend to approximate the score distribution of the standardization group.

Adequate symptomatic interpretation of apperception (or location) scores in the Rorschach test requires some method of expressing the scores that indicates the degree to which the subject concentrates on, or neglects, the various score categories. The Apperception Type (*AT*) was devised by early workers in order to express the relations between apperception scores and so to simplify configurational analysis. Three specific goals were to be achieved by the *AT*. (a) Some standard or average score pattern appeared desirable against which individual variations could be compared. The European workers took as a standard the averages of Whole (*W*), of large Detail (*D*), of small Detail (*Dd*), and of Space (*S*) scores obtained from groups of *Ss* living in a variety of localities. *Ss* who had apperception scores near the average were termed W - D subjects. (b) A complex method for indicating direction of deviation of a *S*'s apperception scores from the standard was adopted that involved: underlining, bracketing, or leaving the symbol out of the *AT* altogether, in addition to having the symbol for the score stand unaltered. (c) The strength or significance of the deviation was also indicated in a complex manner. Increases in *W* or *D* were indicated by underlining the symbol for the score, the number of lines under the symbol indicating the degree of increase; moderate decreases in *W* and *D* were indicated by bracketing the symbol and strong decreases were indicated by leaving the score symbol out of the *AT*. Rules for *Dd* and *S* differed from those for *W* and *D*, with absence of the symbol in the *AT* indicating both normal and less than normal amounts of the score, brackets around the symbol indicating moderate increases, the symbol standing without bracketing or underlining indicating strong increases, and underlining indicating extreme increases (see Table III for example).

The scores used as a basis for the *AT* were not absolute scores but rather percentages calculated by divid-

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ing each apperception score by the total number of responses (*R*). The early workers were attempting to allow for the effects of *R*, however it is now accepted that this practice has serious limitations. For one thing, it assumes that a person with a high *R* record has the same likelihood of obtaining a particular percentage of a certain apperception score as a person with a low *R* record. This assumption can be shown to be incorrect. Another problem is that the regressions of the various apperception scores on *R* differ. Therefore, although the early workers were correct in recognizing that the effects of *R* create a serious problem, their solution of the problem was inadequate.

Two other methods of dealing with the effects of *R* might be adopted. One method is illustrated in Holtzman's (1961) inkblot test, where the subject is only allowed one response per card. However, although this solution reduces the enormous variability of *R* that occurs in the Rorschach, it does not avoid it altogether, because some *Ss* still refuse to respond to certain cards. Also, the present authors suspect that allowing only one response per card unduly misrepresents many *Ss* who have a strong tendency to give a whole response as their initial reaction to a card, but who can then go on and demonstrate, by producing freely other types of apperception responses, that reactions to other qualities of the stimuli are also strongly present. Finally, many clinicians are unwilling to accept one consequence of this method which is the loss of *R*, a most important variable of the Rorschach (Neiger, Slemon and Quirk, 1965).

The other alternative, that has been adopted by the authors, is to preserve the general form of expressing the *AT* adopted by the early workers, but to use a somewhat more satisfactory method of adjusting scores for the effects of *R*. The best compromise, in the writers' opinion, is to select a group of normal *Ss*, to transform *R* and the apperception scores in order to normalize their distributions, and to deduct from the transformed scores of each apperception variable the expected scores derived from their regressions on *R*. Averages of the adjusted scores and weightings based upon deviations from the averages can then be calculated and used as a basis for the *AT*.

METHOD

Ss were 100 males and 100 females between the ages of 20 and 40 living in the Metropolitan Toronto area. At the time of testing, *Ss* were not in an institution for the mentally disturbed, and they were not tested as a result of coming for help to an agency serving people with behavioral or social disturbances. Most *Ss* were obtained from various businesses or industries in Toronto or were housewives, and they were tested at their places of business or in their homes by specially trained research assistants. A few *Ss* were tested by students in Rorschach courses who had received detailed training in administration of the test. An attempt was made to obtain a sample that was approximately representative, with regard to occupational and educational levels, of 20 to 40 year olds living in Metropolitan Toronto.

The system of administration and scoring used differs from that of certain American systems in a number of respects (Neiger, Quirk, and Slemon, 1961). The instructions for administration and the responses that the examiner must make to various reactions and questions of the *S* are very clearly defined. There is no special inquiry period following the performance proper, but there is a query for location after any response in which the examiner is uncertain what area the *S* was using. Although the definitions of *W* and *D* responses are quite similar to those used by most American Rorschach schools, there would likely be considerable difference in the scoring of *Dd* and *S*. The difference between *D* and *Dd* responses in this system is primarily based upon the size of the area used with aspects of gestalt playing only secondary roles. If the blot area to which the *S* responds were rearranged into a square, and if the sides of the resultant square were between one-half and three-quarters of an inch long, the response would usually be scored *D*, unless it was an area that is seldom used, in which case it would be scored *Dd*. Larger areas would always be scored *D*. If the resultant square had sides between one-half and one-quarter of an inch long, the response would usually be scored *Dd*, unless it was an area that is frequently used, (e.g., a small area that elicits popular responses) in which case it would be scored *D*. Smaller areas would always be scored *Dd*, with the exception of the small orange area on card X often called a wishbone which is always scored *D*. Space responses are given much more emphasis than in most American systems, and, although secondary use of space is not incorporated in the *AT*, many *S* responses that are given a bracketed score in other systems would obtain a full score in the present one.

From the data obtained from normals, adjustments for *R* were calculated as follows: (a) Transformations were selected in order to normalize the distributions of *R*, *W*, *D*, *Dd*, and *S* scores. (b) After plotting each transformed apperception score against transformed *R* to determine whether the relations were approximately linear, regression equations were calculated, and from these equations the predicted transformed apperception scores that would be expected to occur in association with various transformed *R* scores were determined. (c) Differences were found between the actual, obtained transformed apperception scores and the predicted scores for each *S*. (d) Cumulative percentage distributions of the difference scores were determined, and cut-off points were selected below which certain predetermined percentages of the group fell. Consistent with traditional practice, limits were set for unusually strong and for unusually weak emphasis on *W* and *D* responses, but there were only limits set for unusually strong emphasis on *Dd* and *S* responses, normal and below normal proportions of the latter two scores being ignored.

RESULTS

There is a very high correlation between transformed *D* responses and transformed *R* ($r = .92$), indicating that these are essentially similar variables. The relatively low correlation between *W* and *R* ($r = .33$) gives some support to the practice of certain Rorschach workers who simply use the absolute number of *W* responses without regard to *R*. *Dd* and *S* responses show moderate relations to *R* ($r = .66$ and $r = .47$ respectively).

Table I gives the transformations of the obtained apperception scores. The first column of Table II gives various values of obtained *R*, while the other columns give the expected transformed apperception scores associated with these various levels of *R*. The expected transformed apperception scores were derived from the various regression equations.

After subtracting the transformed expected apperception scores from the transformed obtained scores, the cumulative percentages of the differences were found. The various values of scores and associated symbol weightings shown in Table III were determined from the cumulative percentages.

DISCUSSION

Certain limitations of this method should be noted. First, some of the values in the tables are based upon extrapolation. About 95% of the normal *Ss* obtained *R* scores between 12 and 70 inclusive. Therefore, difference scores and *AT*s obtained from *Ss* who obtain *R* scores considerably

TABLE I—Transformations of Obtained Apperception Scores

Score				
Transformed	Obtained			
	W	*D*	*Dd*	*S*
0	0	0	0	0
3	—	—	—	1
5	—	—	1	2
6	—	—	2	3
7	—	—	3-4	4
8	—	—	5-6	5
9	—	—	7-8	6-7
10	1	1	9-11	8
11	—	—	12-15	9-11
12	—	—	16-19	12-14
13	—	2	20-24	15-17
14	2	3	25-30	18-22
16	—	4		
17	3	5		
18	—	6		
19	—	7		
20	4	8		
21	—	9		
22	5	10-11		
23	—	12		
24	6	13-14		
25	—	15-16		
26	7	17-18		
27	—	19-20		
28	8	21-23		
29	—	24-25		
30	9	26-28		
31	—	29-31		
32	10	32-34		
33	11	35-37		
34	—	38-41		
35	12	42-44		
36	13	45-48		
37	14	49-52		
38	—	53-57		
39	15	58-61		
40	16	62-66		
41	17	67-71		
42	18	72-76		
44	19			
45	20			
46	21			
47	22			
48	23			

TABLE II—Expected[a] Transformed Apperception Scores for Various Values of *R*

Obtained *R*	Expected Score			
	W'_t	D'_t	Dd'_t	S'_t
0-1	16	0	0	0
2	19	0	0	0
3	21	1	0	0
4	22	3	0	0
5	23	6	0	0
6-7	24	8	0	0
8	25	11	0	0
9-11	26	14	0	1
12-14	27	16	0	1
15-17	28	19	1	2
18-22	29	21	2	2
23-28	30	24	3	3
29-35	31	26	4	4
36-44	32	29	5	4
45-56	33	31	6	5
57-70	34	34	7	5
71-89	35	37	8	6
90-112	36	39	9	7
113-141	37	42	11	7
142-177	38	44	12	8
178-223	39	47	13	8

[a] Expected Apperception Scores calculated from the following regression equations:

$$W'_t = 1.0195R_t + 15.6258$$
$$D'_t = 2.5573R_t - 12.0255$$
$$Dd'_t = 1.0318R_t - 11.1604$$
$$S'_t = 0.6078R_t - 5.5687$$

above or below this range must be interpreted with great caution. For example, an *S* who gives only four responses, on the basis of these tables, is expected to have five *W* responses which is obviously impossible. Apparently when *Ss* give few responses, the probability that the responses will be *W* responses is very great. Of course, records with as few as four *R* would seldom be found.

Another problem of concern is the extremely wide range of *R* that is being adjusted for by this method. The problem always remains for the clinician to judge what variables are accounting for a particular apperception score. A relative predominance of *W* in a low *R* record may be due to poor ability to analyze perceptual wholes, whereas a relative predominance of *W* in a normal *R* or high *R* record is more likely due to good synthesizing ability. The authors would be the last to argue that these adjustments for *R* eliminate it from

TABLE III—Weightings for Differences Between Transformed Obtained and Expected Apperception Scores

% in Category	Symbol	$W_t - W'_t$	Symbol	$D_t - D'_t$	Symbol	$Dd_t - Dd'_t$	Symbol	$S_t - S'_t$
1	$\underline{\underline{\underline{\mathrm{W}}}}$	+14 & above	$\underline{\underline{\underline{\mathrm{D}}}}$	+6 & above	$\underline{\mathrm{Dd}}$	+6 & above	$\underline{\mathrm{S}}$	+7 & above
4	$\underline{\underline{\mathrm{W}}}$	+11 to +13	$\underline{\underline{\mathrm{D}}}$	+4 to +5	Dd	+5	S	+5 to +6
20	$\underline{\mathrm{W}}$	+5 to +10	$\underline{\mathrm{D}}$	+2 to +3	(Dd)	+3 to +4	(S)	+2 to +4
50	W	—4 to +4	D	—1 to +1	—	—	—	—
20	(W)	—10 to —5	(D)	—4 to —2	—	—	—	—
5	—	—11 & below	—	—5 & below	—	—	—	—

Example. — Raw Scores: ($R = 35$) $W = 18$, $D = 8$, $Dd = 3$, $S = 6$

Transformed Apperception Scores (Table I): $W_t = 42$, $D_t = 20$, $Dd_t = 7$, $S_t = 9$

Expected Scores when $R = 35$ (Table II): $W'_t = 31$ $D'_t = 26$, $Dd'_t = 4$, $S'_t = 4$

Difference Scores: +11 —6 +3 +5

AT (Table III): $\underline{\underline{\mathrm{W}}}$ — (Dd) — S

Since the normal AT is W — D, the obtained AT indicates strong increase in whole responses (the symbol is underlined twice), strong decrease in large details (the symbol does not appear), mild increase in small details (the symbol appears in brackets), and strong increase in space (the symbol appears and it is not bracketed or underlined).

consideration or simplify the task of trying to interpret the basis of the deviations that are found.

One observation of the effects of this system with regard to *AT*s of pathological cases should be noted. Hospitalized psychotic cases are apt to have low *R* records, and when apperception scores are converted to percentages in the traditional manner, they often are found to have high *W*%. The authors' experience during the brief time that the present system of adjustments has been used is that with this system psychotics *do not differ greatly* from normals in their relative use of *W*. If this observation is confirmed it suggests that, with respect to apperception scores, psychotics may behave very much like normals with low *R*, and that, as far as the Rorschach test results are concerned, the critical variable is their low productivity rather than unusually deviant *AT*.

In order to determine whether these tables of adjustments based upon normal adults might apply to groups of *S*s having other characteristics, children in five different age groups were examined. These children had been referred privately to the senior author mainly because of behavioral disorders. The groups differed with respect to sex, the younger groups containing few girls, and also with respect to *R*, the older groups tending to produce more responses. Table IV suggests that, with the exception of *Dd*, deviations from the expected adult frequencies could easily be accounted for as chance fluctuations. The medians of the five age groups, which are shown in the second last column of Table IV, are fairly similar to those expected from the adult data. With respect to the *Dd* score, four out of five of the age groups have a larger number of *S*s with high *Dd* scores than would be expected from the adult data, the main deviations from expected frequencies being in the three youngest groups; 6-7, 8-9, and 10-11. Otherwise, the data from these behaviorally disturbed children suggest that it is not completely unreasonable to assume that the standards based on the normal adults may have fairly wide applicability to different groups.

The above method of making allowances for *R* might be used with other Rorschach variables beside *AT*. For example, the Experience Type (*ET*), which is a comparison between the relative amount of movement (*M*) and sum of colour (ΣC) scores might be adjusted in a somewhat similar manner. The authors have worked out difference scores and

TABLE IV—Number of Children in each of Five Age Groups that Obtained Various Levels of Apperception Scores as Compared with the Expected Adult Frequencies

Score	Age[ab]						
	6-7	8-9	10-11	12-13	14-15	Median of Age Groups	Expected Adults
Whole							
$\underline{W}$ to $\underline{\underline{W}}$	2	2	3	1	4	2	2.5
W	6	3	4	6	3	4	5.0
0W to (W)	2	5	3	3	3	3	2.5
Detail							
$\underline{D}$ to $\underline{\underline{D}}$	2	4	2	5	3	3	2.5
D	6	3	4	4	5	4	5.0
0D to (D)	2	3	4	1	2	2	2.5
Small Detail							
(Dd) to $\underline{Dd}$	4	5	5	3	2	4	2.5
0Dd	6	5	5	7	8	6	7.5
Space							
(S) to $\underline{S}$	1	5	2	3	5	3	2.5
OS	9	5	8	7	5	7	7.5

[a] Median *R* for each age group:
6-7, 17.5; 8-9, 25.5; 10-11, 19.5; 12-13, 32.5; 14-15, 35.0

[b] Number of girls in each age group:
6-7, 2 girls; 8-9, 1 girl; 10-11, 3 girls; 12-13, 5 girls; 14-15, 6 girls

standard scores associated with such difference scores for these variables and have used these adjusted standard scores in the *ET*. However, systems of scoring *M* and Σ*C* vary so greatly that the tables would probably not be applicable to the scoring practices of other workers.

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Exhibitionistic Human Movement Responses of Strippers: An Attempt to Validate the Rorschach M

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Summary: A group of women employed as strippers produced significantly more exhibitionistic M on the Rorschach than three other matched control groups. Results were interpreted as supporting the position that the human movement response is related to actual behavioral tendencies.

This study investigates the hypothesis, first propounded by Piotrowski (1957, p. 141), that M responses on the Rorschach represent prototypal action tendencies which tend to be expressed motoricly. In order to test this contention an attempt was made to relate M, in a meaningful way, to observable behavior. To be meaningful, in this context, the behavior in question must represent a fundamental orientation – a continual, repeated, and characteristic mode of adjustment. A fortuitous, haphazard or occasional act, no matter how objective, would not really do justice to the basic concept. It is postulated that one method for locating and isolating genuine prototypal M, as defined above, might be to select as criteria certain occupations which, by their very nature, demand a narrow and specific set of attitudinal and behavioral correlates. One such occupation would be that of the stripper[1] since, in order to enter into and be successful at this trade, a woman would have to be decidedly exhibitionistic and her Rorschach could then be examined for the presence of exhibitionistic M. Secretaries, salesclerks, housewives, teachers, and librarians (to mention a few feminine occupations) can get by without exhibitionism, but the stripper continually displays herself with the clear intent of provoking interest, admiration, and desire. It is difficult to envision a stripper without exhibitionistic tendencies; therefore, this study compares the M responses of a group of professional strippers with a number of matched control groups under the hypothesis that the strippers will demonstrate more exhibitionistic M than the controls.

PROCEDURE

The strippers were seven women who were actively engaged in the profession and who routinely traveled from one locale to another, performing their act as a principal source of income.[2] They were all at least moderately successful in their vocation, earning anywhere from $200 to $500 per week. Their average age was 27.7, S.D., 3.7. Mean number of years actively working as a stripper was 8.3, S.D., 5.9. Each subject in the three control groups was matched with a corresponding subject in the experimental group on total number of M per protocol so that any obtained differences would not be an artifact of the absolute number of M responses (Table I). The control subjects were also individually matched to the experimental Ss by age, within ±5 years. The controls consisted of 21 women, previously diagnosed by a psychiatrist in private practice.[3] These included seven psychoneurotics, seven schizophrenics, and seven "normals."

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[1] The word stripper seems more apposite than other euphuistic terms such as "exotic dancer" since, in fact, the essence of the routine performed by these women was the removal of clothing, piece by piece, and any singing, dancing, and acting was secondary to this procedure.

[2] Appreciation is expressed to Paul Young, proprietor of the "21 Club," Akron, Ohio, for making these subjects available.

[3] Appreciation is expressed to James R. Hodge, M.D. for making these protocols available.

TABLE I—Sign Test Comparing Number of Exhibitionistic M for Seven Strippers with Matched Groups of Neurotics, Schizophrenics and Normals.

No. M per Protocol	No. Exh. M Strippers	No. Exh. M Neurotics	Sign	No. Exh. M Schizophrenics	Sign	No. Exh. M Normals	Sign
5	3.0	1.0	+	2.0	+	2.0	+
3	1.7	1.0	+	1.0	+	1.0	+
4	3.0	3.0	0	.7	+	2.0	+
6	3.3	2.0	+	0	+	1.3	+
2	1.0	1.0	0	1.0	0	.7	+
2	1.7	1.0	+	0	+	1.0	+
1	1.0	0	+	0	+	0	+
P (one-tailed) =			.031		.016		.008

The normal group consisted of women who had been psychiatrically evaluated, for reasons other than suspected psychopathology, and found to be within the normal range of adjustment.

A tabulation of the location of all the M responses indicated that differential card pull was approximately what might be anticipated, with card III foremost in eliciting M. The differences in card pull among the four groups appeared to be negligible. The total number of M, by card, for the strippers, neurotics, schizophrenics and normals (in that order) was as follows: I, 4-2-5-4; II, 1-2-1-4; III, 7-7-8-7; IV, 1-3-2-2; V, 2-1-2-1; VI, 1-1-1-0; VII, 5-5-1-2; VIII, 0-0-1-0; IX, 2-2-1-2; X, 0-0-2-1.

The strippers were compared to the control cases in terms of the number of exhibitionistic Ms appearing in the records. An exhibitionistic M was operationally defined as a human movement response which involved an activity performed for the benefit of an audience (e.g., skating, dancing, playing an instrument) and/or an exhibitionistic enhancement of the individual through costuming, adornment, or other external trappings (e.g., "dressed in costume for a ball", "decked out in his Sunday best", "wearing tight toreador pants").

This definition was presented to two psychologists along with coded typescripts of the M responses. The psychologists were asked to identify the exhibitionistic responses in accordance with the definition given above. Intercorrelations between the investigator's scoring and the scoring of the two independent psychologists for the 28 protocols were high (rs = .83 ± .06; .85 ± .05; .90 ± .04) indicating that the foregoing definition of an exhibitionistic M was reasonably explicit and meaningful. Wherever differences in scoring were noted, the average for the three scorers was used as the final entry. The average number of exhibitionistic M is shown in Table I which compares the stripper group with the three other groups using the sign test. It was hypothesized that the strippers would have significantly more exhibitionistic M than the three controls at the .05 level of confidence. A non-parametric test was used because the distribution of exhibitionistic M in these populations was unknown.

RESULTS

The hypothesis was confirmed for all three comparisons. As shown in Table I, the stripper group had significantly more exhibitionistic M than the neurotic, schizophrenic or normal controls.

DISCUSSION

The results indicate that at least *some* M are related to specific vocationally-connected behavior, thus supporting Piotrowski's position that human movement responses on the Rorschach connote important behavioral tendencies. Whether *all* M betoken direct motoric expression remains a moot point. Parker (1965), has shown that M differ among themselves in terms of subjective acceptability and it may be that M also vary along a behavioral continuum, some being overt while others are nascent. Perhaps, as a compromise working hypothesis, it could be postulated that all M represent *potential* behavior. Research is needed to establish whether Ms do differ in terms of the probability of efferent expression and, if so, the factors influencing these differences.

A perusal of the individual protocols revealed several qualitative distinctions between the exhibitionistic M of the strippers and those of the control subjects which seem worthy of note. The exhibitionistic M of the stripper were more personalized and directly related to their occupation. Compare, for example, the initial exhibitionistic M given by the first row of Ss in Table I:

> *Stripper:* (V) This looks like a woman laying down with her legs in the air, standing on her head. Here's a man's head looking at me from the audience – he's watching the act.
>
> *Neurotic:* (VI) Back of an Indian all dressed for tribal dance. (Q) Holding arms up . . . all his plumes . . . don't know why, but it does.
>
> *Schizophrenic:* (III) Two men bowing to each other, doing some kind of dance . . . homosexuals holding pocketbooks. In between them there is a punch bowl, very fine crystal.
>
> *Normal:* (I) Looks like two large people on each side, dancing.

Also, the strippers tended to ascribe specific race and nationality to their dancing and performing M, producing seven such responses: " . . . Africans, looking at each other. They could be Chinese or Japanese too . . . "; "Also looks like two Greek dancers, touching hands . . . "; "Afro-cuban dancers, beating a drum, doing a fire dance . . . "; "Doing a dance . . . You know, like they do in North India."; " . . . two colored people playing bongos . . . "; "Could be two Greco dancers"; "Looks like two African dancers."

The control subjects, taken together, gave only three such responses and these were of the "African native" variety: "Two Africans beating a drum . . . "; "Two natives beating drums."; "Two people doing an exotic dance . . . might be natives . . . "

Whether these two M characteristics – occupational relatedness and ethnic identification – are peculiar to strippers, or whether they are instances of a broader principle which may be applicable to other groups, is a matter for conjecture. However, it would appear that a thorough analysis of the human movement response cannot be undertaken without grappling with these content nuances. Indeed, the very notion of an "exhibitionistic M" presupposes a content analysis.

The use of carefully chosen vocations appears to be a promising strategy for validating projective techniques when questions of actual behavior are at issue. Unfortunately, most occupations are broad enough to include a variety of psychological orientations and would be useless for this kind of study. However, vocations with limited behavioral ambits do exist in this society and it would be interesting, for example, to ascertain whether pugilists give aggressive M, successful executives give directive M, radio announcers give communicative M, etc. Research along these lines could confirm the present findings and perhaps aid in validating other recalcitrant Rorschach variables.

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A Suggestion For Gaining Rapport With Children Who Appear Resistant To Testing

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Summary: A story-drawing technique designed to gain rapport with children who appear resistant to testing is described. The technique involves the child with the examiner in a question answering procedure around the development of a picture the examiner draws for the child. The drawing has intrinsic interest, permitting the examiner to shape the set of responding to questions in an enjoyable, non-evaluative setting prior to the introduction of test materials. The drawing, requiring no artistic skill on the part of the examiner, is suitable for children up to about eight or nine years of age.

A child who looks as if he will not respond to testing poses a problem for the psychologist. The psychologist wants to use his time profitably, but beyond economic considerations, the untestable child offers a threat to the psychologist's sense of competence. One is tempted to press harder to try to force material from a resistant child. The end result sometimes is frustration and defeat for both psychologist and child. The frequency of untestable children is unknown, but in some settings, I would guess the rate may be as high as five or ten per cent.

Recommendations for gaining rapport are rarely explicit in texts on testing. It is assumed the psychologist will gain rapport before he begins testing, but he is rarely told how to accomplish the task. The immediate objective of rapport building efforts is to develop the kind of relationship in which the child will participate freely with the examiner. Basically, one attempts to build a cooperative, working relationship in which the child accepts the examiner's instructions and responds to the stimuli the examiner presents.

Untestable children are either openly negativistic, or they tend to be frozen with anxiety. In manner, in action, and in word, the child seems to be saying, "I am not going to give you anything". Testing procedures run directly afoul of such an attitude by requiring answers to questions. I suspect that many attempts at rapport building also depend upon questioning the child, or "getting" something from him. If in fact the issue is one of refusing to give, then direct questions should only reinforce the child's determination not to respond.

Working with such an hypothesis, I will not ask any questions of quiet, timid, withdrawn unresponsive children. Rather I will talk to the child, commenting that it must be hard to be with a stranger. I will try to give as much information as I can about the purpose of testing, and I will try to establish myself as less of a stranger by mentioning the names of people he has been in contact with whom I know, or telling him I have been in his part of the city, mentioning a familiar landmark. If a child has something with him, or if he offers any lead at all to something important to him, I will express open approval. My intent is to provide as much support as I can by giving information, support, and approval.

In addition to giving verbally, I employ a method which has as its objective drawing a child into a cooperative effort with me before any test material is introduced. This aspect of the procedure may be conceptualized in operant conditioning terms quite readily. At an early point in our relationship, I will draw a picture for the child and tell him a story. The story and the drawing are interwoven in such a way that the ending of both story and drawing provide a pleasant surprise. The stories and drawings are not original with me, but were taught to me by a ten year old emotionally disturbed boy. I believe he was taught to do the drawings by an art teacher, but my scholarly instinct has not been sufficiently strong to lead me to search out the original source. For convenience the technique might be called a story-drawing.

I will give two examples, and from these two, one may readily construct others. I have found that if the technique is at all effective, two story-drawings are sufficient. The first is as follows:

Once upon a time, there was a very unusual house. It had one door, two windows and two chimneys." As I say these words, I begin to draw the picture. (See Figure 1)

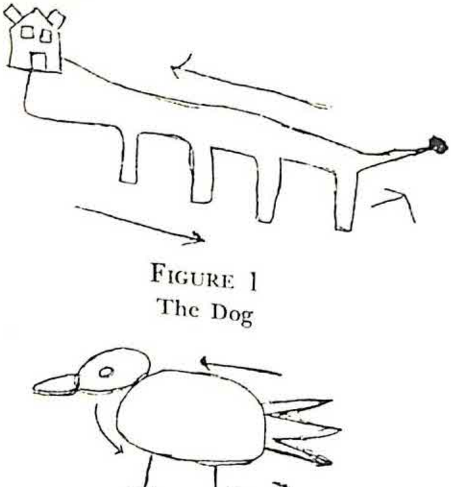

FIGURE 1
The Dog

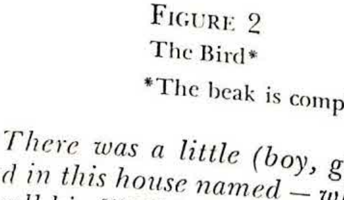

FIGURE 2
The Bird*

*The beak is completed last.

"There was a little (boy, girl) who lived in this house named — what shall we call him?" This is the first question.

Its purpose is to elicit a response from the child to my question as a stimulus. My approval and later use of whatever name he offers is the reinforcement.

"This little boy Jimmy had a pet dog. What shall we call the dog?" By making the situation gamelike, pleasurable and non-evaluative, and by requiring the simplest kind of response, I have the opportunity to reinforce the response of *answering*. If the child doesn't offer a name, I will suggest one, but I will not use it until I get at least a nod of approval. By accepting and reinforcing such a minimal response, one makes use of the principle of shaping.

"Jimmy stepped out of his house and looked for   . Did he see him?" (Wait for answer, and repeat it or otherwise approve.)

"Now Jimmy went to look for his dog. He walked this way (draw in the lines shaping the dog — Step 1) . . . *and then looked down the first street. Did he see the dog?"* Each successive "leg" or street offers an opportunity for drawing the child into interaction with the examiner.

"Well, he thought he would look over here in the bushes (tail). Did he find his dog there?" (Wait for an answer.)

"By now, how do you think Jimmie was feeling when he couldn't find his dog?" The question permits the child to answer more than yes or no. However, if he is reluctant to respond, the question should not be pressed. Offer an answer, and seek for his affirmation of the answer.

"Jimmie decided he would go home. Did he walk fast or slow? Why?"

The final line is now drawn from the tail to the house, completing the dog.

"What did he find when he got home?"

Most children seem to perceive the dog correctly, irrespective of the lack of skill of the artist. It is useful to draw the picture on a 3x5 file card and offer the completed picture to the child as a gift. After finishing the first, ask if he would like to do another. The reply, almost invariably, is "yes".

The second story drawing is as follows:

"This is a story about another unusual house. It is a round house, by a big pond, and it has only one window, and no doors." As one says the words, draw the relevant circles.

"There is a little (boy, girl) who lived in this house by the pond. What shall we call him?"

"Since Jimmie lived by the pond, he had a special pet bird. What shall we call the pet bird?" "One day Jimmie went out of his house to see (name), his pet bird. He looked all around, but did he see (name)?" "What did he decide to do then?" The usual reply is "look for him", but if another answer is offered, one can say, "yes, but then he thought he would try to find him."

This drawing is somewhat more transparent than the previous one, so it is useful to keep a good part of the figure covered with one hand to maintain the surprise.

"He started walking around the pond, and then thought he would walk down this road (first leg). *First he looked this way, and then, this way, and then that way* (with each statement draw another claw). *Did he see . . .?"*

The same formula is repeated for the second leg, and for the tail feathers. The tail feathers may be drawn in quickly to indicate Jimmie's increasing concern about his pet. At about this point, one can ask how Jimmie was feeling, and whether Jimmie walked or ran home, as above. The repetition of the previous format helps make it easy for the child to respond.

"When Jimmie got home, he still hadn't found . . . his pet. He was feeling sad, and he went back in his house through the one window. He sat and thought for a while. He thought that if he went outside once more, he might find . . . Did he go out?"

As this point, draw the beak, and expose the entire drawing saying, *"What did he find?"*

Again, the child is offered the drawing as a gift. If he has been responding regularly, testing may be started at once. A bridge to testing may be created by saying something to the effect that you now have some other things you would like to do with the child.

The entire procedure takes less than ten minutes to complete. The technique is equally suitable for boys and girls, and it seems appropriate for younger children, although some who are older but who still retain younger interests, will respond to the pictures.

The technique provides a rapid means of "giving" to a child who is not prepared to "give" himself. The story drawing is intrinsically interesting and pleasant, and permits the child to receive something from the examiner without feeling he is being manipulated. There are no strings attached to the gift of the pictures. The story drawing uses pencil, paper and questions as the later test does, and the file card bears no resemblance to a toy which might be used as a bribe.

The technique capitalizes on a question and answer format, but in the context of a cooperative effort. No evaluation is implied and the child is invariably correct. The examiner's approval is a form of reinforcement for the general set of responding to questions. The threatening nature of the situation is clearly reduced.

Some few children will continue to resist testing, but in my experience the vast majority of children who are unresponsive initially, do respond to this approach.

Beginning students are anxious to do well in their early practicum and internship experiences. A resistant child may prove to be quite unsettling to the student and it is reassuring to have something concrete to do when the subject is unresponsive.

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BOOK REVIEWS

Lang, Alfred, *Ueber zwei Teilsysteme der Personlichkeit.* Beitrag zur psychologischen Theorie und Diagnostik (Two systems of personality components, a contribution to psychological and diagnostic theory). H. Huber, Bern Switzerland, 1964, 147 pp., approx. $5.00.

This monograph consists of two parts which have about as much connection as East and West Pakistan. In the first 61 pages the ideas of Kurt Lewin about psychological space and its structure are interestingly combined with some ideas of Richard Meili (of the University of Bern) about the genesis of the psychological space. This combination is proposed as the fundament on which to build a theory of personality diagnosis, with special relevance to projective tests such as the Rorschach. To do so, the author applies one of Meili's basic personality constructs consisting of a dichotomy between subjector object dominance to test variables. The farther away a variable is from the center of a subject's psychological space, i.e., the less an individual's affective self is involved, the more the variable is said to be object dominated. The closer to the center of the psychological space, the more subject dominated. This division into public and private sectors which is treated as something rather new, is then in the next 80 pages applied frequently without detailed explanation to 31 variables (measured on 60 students) which are included in a factor analysis. The variables consist of 11 Rorschach variables and 20 other variables derived from the following tests and procedures: A) 5 of the Kohs block designs (4 scores); B) Thurstone's homonyms test (2 scores); C) a questionnaire concerning orientation toward persons or things (2 scores); D) Van Lennep's "4 pictures" projective test (2 scores); E) The Stroop color naming test (3 scores); F) a rating of frequency and strength of extreme ANS reactivity such as in blushing, perspiration, irregular breathing, muscular pain, stomach upsets, diarrhea, or skin conditions based on brief verbal questioning (1 score); G) birth order among the siblings (1 score); H) free association to 50 words presented orally (5 scores).

The intercorrelations between these 31 variables are presented and the finding of a positive correlation between two variables hypothesized to be both indicative of object dominance or both indicative of subject dominance are said to confirm the hypotheses.

In calculating the intercorrelations there seems to have been no awareness of the fact that some of the multiple scores derived from a single test are not experimentally independent, such as Form and Form percent, or Form and Color percentages, nor has the probable occurrence of curvilinear correlations or badly skewed distributions been considered. Of the 465 correlations, 76 or 16.3% differed from zero at the 5 percent level of significance. A principle axes factor analysis was performed on an electronic computer followed by graphic rotation of some pairs of factors. Because only factor 2 was rotated with factor 6, then with factor 4, with factor 1, factor 7, and factor 5, this is not an objective rotation such as procedures like Varimax or Oblimax provide. Several of the factors, including the first one, are strongly bipolar suggesting that rotation to simple structure was not achieved. In a way, this does not matter though, since the above mentioned violations of good statistical design made it just about impossible to get adequate results from this factor analysis. This is a good example of the "sausage machine" type of application of factor analysis in which an odd mixture of variables, selected without a prior set of more or less clearly hypothesized factors, is "ground up" through a computer program without an understanding of the requirements to be met by intercorrelations for proper use of the program.

It is especially painful to me to see such a poor use of a computer program because there have been few psychological computer applications in Switzerland, and because some of the author's *ad hoc* hypotheses about his variables sound interesting to this reviewer. I hope that the author will not throw in the towel, but will instead do his homework and show better form in a return engagement.

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Vernon, Philip E. *Personality Assessment: A Critical Survey.* New York: John Wiley & Sons, 1964. pp. 333.

This is a lucid, concise, balanced and thoughtful approach to the problems and pitfalls of personality assessment. The author's acquaintance with the relevant research is impressive and there is, withal, a pithy commonsense distillation of this research. In addition to its broad range, the discussion is quite recent in its coverage so that the reader is afforded the advantage of having the author's considerable talents turned upon current as well as past research. His reason for undertaking this volume was in his words "to reach a balanced viewpoint, in light of research evidence, regarding the best approach to diagnosing and assessing people's personalities for such practical purposes as counselling, guidance and selection."

In my opinion he has done this admirably and I commend this volume to the psychological public. He has chosen to organize this work under a quadripartite heading; Part 1 deals with the commonsense, or naive, approach to assessing motives, traits, and personality characteristics and discusses the relevant research in this area, concluding that perceptions of personality gained through such methods have much in common with perceptions of the physical world. In Part 2, a discussion of Freudian or depth psychological approaches to understanding personality is embarked upon but the conclusion of the journey is not marked with sanguine results. Rather, it is put forth that the Rogerian approach to personality, in terms of conceptualizations of the self and its vicissitudes, may be ultimately more fruitful and fairly compelling research evidence is adduced for this point of view. The author's general treatment of this area is excellent; sobering but not pessimistic. With the conclusion of Part 2, the discussion turns to a consideration of psychometric methodologies in personality assessment, notably Eysenck and Cattell. Although it is felt that this approach, with its emphasis upon behavior as reflected through test responses, has merit it is also noted that there are many traps for the unwary as witnessed by such things as response sets, social desirability behavior and the like. In the final part, Vernon commits himself to what he feels is the best approach based upon his analysis of the research discussed in the earlier portions of his book. In general, he takes up the cudgel for a cognitive-perceptual-personality inventory approach to personality assessment, feeling that this tactic will optimize our chances of assessing things more validly with less inferential steps between behavior and the personality description. His conclusions are well-reasoned and he presents a persuasive case; further, even if one does not entirely agree with him it is still evident that he has raised some provocative questions with which to come to grips.

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Saint Louis 3, Missouri

LETTER TO THE EDITOR

Interpreting Texture Responses on the Rorschach: A Note on Dr. Linzer Schwartz' "Note on Zulliger's Theory"[1]

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Zulliger has published numerous articles on the use of the Rorschach in Educational and Vocational Guidance, as well as on the Rorschach as an aid in care, guidance, clinical treatment, and psychotherapy to problem children with emotional disturbances and an aggressive, anti-social behavior. In his book, "Jugendliche Diebe im Rorschach-Formdeutversuch. Eine seelenkundliche und erzieherische Studie" (Juvenile Thieves in the Rorschach Test. A Psychological and Pedagogical Study) Bern (Switzerland): Haupt, 1938, 166 pp., Zulliger suggested a Rorschach pattern for predicting the response to pedagogic treatment ("Erziehbarkeit"). This pattern was derived from the analysis of the Rorschach records of about 75 juvenile delinquents, and consists of the FC:CF:C ratio, the M with regard to number and quality, the H and Hd, and other scoring categories. The texture shading responses (representing exclusively the F (Fb) in the sense of Binder which are equivalent to Klopfer's Fc also play a certain role in Zulliger's pattern. The meaning of the concept "Erziehbarkeit," widely used in German language, is twofold: (1) Well adjusted, normal children profit from education with regard to *achievement* in the essential areas of their school work; (2) Emotionally disturbed, maladjusted children profit from education and re-education, which means: restoration of *social adjustment* by means of disciplinary punishment and/or psychotherapy.

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[1] Schwartz, Lita Linzer. A Note on Zulliger's Theory. *Journal of Projective Techniques and Personality Assessment*, 1965, *29*, 226-227.

Zulliger's monograph on juvenile thieves reveals page for page, and chapter for chapter, that he deals with the personality changes of juvenile delinquents, pre-delinquents, and pseudo-delinquents, and not at all with the intelligence and capacity of children and adolescents in their school work.

Accordingly, Piotrowski (1957, p. 252) reports with correctness: "Zulliger underlined the favorable prognostic and educational value of the light-shading texture responses. Punishment means more and results in much greater improvement in behavior in juvenile thieves who have the light texture responses than in those who produce no responses of this type. Children with texture ShR profit more from education than do those children whose records have no texture ShR."

One misunderstanding of Dr. Schwartz' may be traced back to the fact that obviously she did not pay too much attention to the second of Piotrowski's sentences, quoted above. At least, this sentence was omitted in Dr. Schwartz' quotation, p. 226. This sentence, however, makes the point that Zulliger's hypothesis regarding texture responses applies primarily to juvenile thieves and in a broader sense to non-delinquent juveniles.

The second misunderstanding of Dr. Schwartz' consists of her assumption that Zulliger did not develop an interpretative hypothesis for the F (Fb) as a single variable. In fact, she characterized the F (Fb) as an integrant factor of the above mentioned pattern. Zulliger said quite unmistakably, that the interpretation of the F (Fb), as well as the interpretation of any other single variable, depends a great deal on the distribution of the other Rorschach factors.

As Zulliger did not suggest, neither directly nor indirectly, the hypothesis of a significant relationship between school achievement and the texture responses as a single variable, the disposition of Dr. Schwartz' investigation is based on her own assumption alone. Dr. Schwartz mistakenly imputed an alleged theory of Zulliger, according to which she put through an investigation, the results of which she used to refute a non-existent theory.

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ERRATUM

Dr. Robert McCully's article "Current Attitudes About Projective Techniques in APA Approved Internship Training Centers", this Journal 1965, *29*, 271-280, contains an error in Table I. The number of APA approved internship programs in Texas should be 3 instead of 1.

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I certify that the statements made by me above are correct and complete.

Walter G. Klopfer, Ph.D.
Executive Editor

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